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Paper Men Oppose Tariff on Wood Pulp

Chairman of Temporary Committee Opposing Tariff on Wood Pulp Makes Public Letter Written to President—States Proposal of Oregon and Washington Pulp and Paper Manufacturers to Place Duty on Wood Pulp Would Ruin Hundreds of Paper Mills In Other States—Compares Move to Early Activities of Power Trust

The following is the complete text of the letter sent to President Hoover by H. P. Christian, chairman of the Temporary Committee Opposing Tariff on Wood Pulp, which was referred to in last week's issue of the PAPER TRADE JOURNAL, but which was crowded out because of lack of space, due to the fact that the issue was the Annual Mill Number:

My Dear Mr. President:

The petition of the Oregon and Washington pulp and paper manufacturers presented to you on October 12 seeks the ruin of more than 70 per cent of the paper mills in the United States. The obvious plan is to force the pulp purchasing paper mills in other states into a position of absolute dependency upon their competitors in the Pacific Northwest.

An item in today's paper states that Mr. E. M. Mills of Port Angeles, Washington, president of the Washington Pulp and Paper Corporation of that city, called on you yesterday and urged that you issue a proclamation revising the tariff to impose "such duties on the importation of wood pulp and paper imported from such foreign countries as are discriminating against the commerce of the United States in such amounts as will equalize the disadvantages occasioned by foreign discriminations."

The newspaper report further stated that the petition presented by Mr. Mills was in behalf of the pulp and paper manufacturers of Oregon and Washington, and set forth that the industry "is fast approaching extinction because of discriminating duties and of unequal and unfair competition from foreign countries."

Present Situation Defined

The statements reported to have been made to you by Mr. Mills are so far from the facts shown by government and other authentic sources that we feel it our duty to lay before you the present situation of the paper mills who are dependent upon purchasing pulp in the open market. In this connection I would like to make clear that this Committee is interested only in wood pulp which has rightly been on the free list for many years. The work of the Committee is sponsored by more than 150 manufacturers of paper, operating 236 mills, located in 169 cities and towns in 23 states. These companies and the communities in which they are located, face ruin if their supply of wood pulp is cut off by a duty or tax of any kind, such as proposed by the Washington and Oregon mills.

The paper industry in the United States is divided into two principal classes: first, 221 paper mills, known as self-contained mills, which produce wood pulp in their own or affiliated plants and convert it into paper; and, second, 571 paper mills, known as converting mills, which purchase wood pulp and convert it into paper. Some of the mills which manufacture both pulp and paper have a capacity in excess of their normal paper mill requirements and the excess is sold to converting mills. There are in addition only about a dozen mills manufacturing pulp for sale exclusively. According to the Bureau of the Census the output of these mills, together with the surplus wood pulp offered for sale by the self-contained mills, totals only about 15 per cent of the wood pulp manufactured in the United States, which is about one-third of the wood pulp needed by the converting mills making it necessary for the converting mills to import large quantities of wood pulp to take care of their requirements. These imports are principally from Canada, Germany, Norway, Sweden, and Finland.

Bureau of Census Figures

According to the figures of the Bureau of the Census, from 1925 through 1930 (the latest figures available) approximately 72 per cent of the wood pulp consumed in the United States was of domestic manufacture and approximately 28 per cent was of foreign manufacture. The amount of wood pulp produced in the United States, according to the Bureau of the Census figures, increased from 3,962,217 tons in 1925 to 4,630,308 tons in 1930, an increase of 668,091 tons. Imports during this period increased from 1,663,614 tons to 1,832,362 tons, an increase of only 168,748 tons. Imports for 1931 dropped to 1,596,421 tons. Production for 1931 has not yet been published by the Bureau of the Census but estimates made by the Tariff Commission give a United States production of 4,100,000 tons, which maintains the average of 28 per cent of our requirements furnished by foreign pulp and 72 per cent by pulp of domestic manufacture. These figures show that since 1925 the production of wood pulp in the United States has kept pace with the consumption.

(Continued on page 42)

Chicago Paper Market Is Moderately Active

Paper Board Industry Is Experiencing More Than Seasonal Improvement—Demand for Various Grades of Fine Paper Well Sustained—Kraft Wrapping Paper Situation Better—Paper Stock Division Listless—Waste Paper Market Dull

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., October 29, 1932—Uncertainty over the general business outlook is leaving its impression on the paper business, as those interviewed report a quiet continuance of the dull trend of last week. Some lines give promise of more than seasonal improvement, including the paper board industries, where, instead of five day weeks, six and seven day schedules are reported. Bonds and ledgers are sustaining a fairly even pace set earlier in the month while fine papers continue to hold their own. Reports from the kraft market indicate a satisfactory situation as far as price stabilization is concerned and some pre-holiday wrapping paper business is beginning to stir up the situation here. Books and covers are said to be dull. The waste paper market is dull.

Chicago Paper Association's Annual Meeting

On November 8 the Chicago Paper Association will hold its annual meeting and vote on a slate of officers chosen by the nominating committee and announced at the regular session of the association held at the Bismarck Hotel on October 25. Earl Beier, retiring president, of Beier & Co., has been nominated for the position of chairman of the board, one he will automatically fill when the new president goes into office. Other nominations are as follows: for president, Walter Schulmann, Levin Brothers Paper Company; vice president in charge of the industrial division, M. A. McNulty, McNulty Paper & Twine; vice president in charge of the retail division, William Chukerman, J. Chukerman & Sons; for treasurer, James S. Danehy, Schwarz Paper Company, a perennial and very competent holder of the office of secretary-treasurer. Unless unforseen opposition arises within the next two weeks the above mentioned coarse paper executives will guide the association through the coming twelve months period. At the October 25 meeting M. A. McNulty presented to those present a preliminary analysis of the industrial situation and announced the plan of discussing the possibility of improving retail outlets for various industrial items from time to time. Corrugated rolls and corrugated sheets were up for discussion at the initial meeting.

Defoe to Address Paper Salesmen

Nelson Defoe, of the Century of Progress staff, will address the Middle Western Division of the Salesmen's Association of the Paper Industry and guests at a luncheon on Monday, November 14. Luncheon will be served in the administration building of the Century of Progress. The meeting will center around a novel plan for dramatizing paper and paper products to increase consumption and boost sales. To give the visitors to the Century of Progress in 1933 a chance to really learn the many and varied uses of paper, the plan calls for the building of a paper house, constructed entirely from paper products and furnished throughout with paper and paper products. In this way it is felt that the interest will be there to cause the millions of guests to retain in their memories some mighty interesting facts about paper.

Demand for Paper Board Expands

The Chicago offices of the Paperboard Industries Association provided an optimistic tinge last week with an encouraging report announcing that the demand for paper board products was greatly improved. The formal statement, released from 608 South Dearborn street, read in part as follows:

"The paper board industry is being recognized as a barometer of general business for all manufacture other than the heavy industries. . . . Statistics of the association show for the first six months of 1932 the usual seasonal trend, with a volume below 1931 of 15 per cent. With the opening of August a marked change took place. Buyers inquiries increased, contracts for future delivery were sought—disclosing a different attitude—orders were placed and prices began to stiffen. During September further gains were made until container operations advanced beyond the seasonal expectancy to the point of almost full time plant operation. This is the best showing that has obtained in over ten months and has brought an increase in plant pay rolls and the number employed. Past experience shows that a gain in activity in the Eastern market travels toward the West and is indicative of a sustained movement. During the past two weeks the Eastern demand has so improved that now an average of four and three-quarter days is necessary to complete unfilled orders as compared with the former three and one-quarter days. During this period plant activity has been stepped up by more than twenty-five per cent. An advance in price has been made for the first time in nearly three years. . . . The source from which the demand comes is so widely spread that it cannot fail to represent a real quickening of business activity in thousands of manufacturing plants."

Paperboard Industries Association to Meet

Discussions at the November meetings of the Paperboard Industries Association are going to be, in some measure, selected by the members themselves. These members are being urged by Chairman J. M. Arndt, of the Container Industry Sales' Executives' Committee, to address any one of a committee of five men as to the subjects they would like to have discussed at the coming meeting. This novel method of insuring interest was decided upon at the September meetings of the association, held in Chicago. Nominating committees for the annual elections were also appointed in Chicago as follows: Paperboard Group (Presidential) Sidney Frohman, Hinde & Dauch; and Irving Hill, Lawrence Paper Company; (Group) Hugh Strange, John Strange Paper Company; F. C. Ash, Oswego Falls Corporation; E. Victor Donaldson, Robert Gair Company; E. R. Hankins, Container Corporation, and C. S. Rutherford, Fibreboard Products, Inc., Container Group (Presidential) Burritt S. Hubbard, Ashtabula Corrugated Box Company, R. H. Dollinson, Fairmont Box Company; (Group) J. M. Arndt, Robert Gaylord, Inc.; G. A. Bell, Indiana Fibre Products Company; W. J. Cassady, Jackson Box Company; W. S. Hubbard, Wabash Fibre Box Company; H. M. Treen, Fort Wayne Corrugated Paper Company, Folding Box (Presidential) E. R. Hankins, Container Corporation and W. G. Latham, Fort Orange Paper Company. These men will nominate executives for the presidential and group

offices at the annual meeting in New York City, to be held on November 16 and 17.

Salesmen's Golf Outing Successful

One of the outstanding features of the Fall Meeting of the National Paper Trade Association came one day after the termination of the business sessions in the form of a golf outing sponsored by the Salesmen's Association of the Paper Industry and held on October 6 at the Olympia Fields Country Club. The association conceived the idea of the tournament after its successful series of monthly golf outings which drew record crowds and which contributed a great deal toward a better feeling in the Chicago paper market—especially among sales representatives.

A total of 72 paper executives and guests entered the golf program after an enjoyable luncheon. Close to 100 were in attendance at the dinner, which was presided over by Creighton Whiting, vice president of the Middle Western Division of the Salesmen's Association of the Paper Industry. An introductory speech by Harold Knott, president of the national group, contained the announcement that the event was to be made an annual affair and that it would be operated on a national basis—with the warm cooperation and support of other divisions of the Salesmen's Association. Following such a successful day's entertainment, the announcement was greeted by both executives of mills and sales representatives with genuine pleasure.

Courtney Reeves, chairman of the middle west divisions' golf committee, turned in his gavel of authority after the most successful year yet enjoyed, by announcing the prize winners which included the following: low net, 17 and under, Lou Sisson, Racquette River Paper Company; low net, 17 and under, second prize, W. J. Tilden, Eastern Manufacturing Company; low net handicap 18 to 30, George K. Gibson, Mosinee; low net 18-30, second prize, Tom Donahue, Riegel Manufacturing; least number of putts, D. W. Pratt; Blind Bogey, Phil Howard, *American Paper Merchant;* low score on par three holes tied for by R. W. Miller, H. F. Leahy and W. B. Moore, with R. W. Miller winning on the draw; low score on odd holes, O. Killer and low score on even holes tied for by E. Rohrer and Harry Johnson with the former winning on the toss-up.

News of the Trade

H. J. "Jack" Miner, formerly western sales manager of Hollingsworth & Whitney, has recently been appointed general sales manager of the Munising Paper Company, with Chicago offices in the Wrigley Building. Mr. Miner retired from Hollingsworth & Whitney about a year ago and is again assuming active participation in the paper field with Munising. He is an experienced veteran in the paper business, being especially familiar with all grades of fine papers, an experience and knowledge collected from many years in the industry. He is the salesman who pioneered for Hollingsworth & Whitney in this territory, building up a splendid business with the aid of Frank Prentiss, present Hollingsworth & Whitney representative here.

Bearing out the impression that the paper board industry is moving ahead in gratifying fashion, the Container Corporation of America reported, according to Walter Paepcke, president, that September was the best month of this year, with the increase in volume being more than seasonal. Container reported for the September quarter a net loss of $383,131 after interest, depreciation and all other charges, as compared with net loss of $87,058 in the second quarter and net loss of $133,019 in the third quarter of 1931. For the nine months ended September 30, 1932, net loss amounted to $1,079,687 after all charges and inclusion of $106,161 profit realized on the purchase of bonds and debentures.

New Eastern Folder Out

A timely direct mail piece, "Postage and Atlantic Bond" has just been sent to the trade by the Eastern Manufacturing Company. Included in the folder which contains actual samples of letterheads, is a handy postal guide for advertisers which will probably get the attention it deserves. The question "How Shall We Mail It" is answered in detail in the sixteen page booklet and Eastern utilizes the inside front cover to feature a color chart of Atlantic Bond papers, listing twelve colors and six grades of white, including ripple finish, linen finish, white cold pressed laid and cream cold pressed laid.

Carlyle Paper Mill Resumes

The Carlyle Paper Company, whose plant has been closed since May 15, has announced a twenty-four hour daily operating schedule which was put into effect on October 15. W. P. Hinkel, vice president, announced that the move would re-employ about eighty men.

Bids for Government Paper

WASHINGTON, D. C., November 2, 1932—The Government Printing Office has received the following bids for 36,000 pounds of chip board: Charles G. Scott & Co., Inc., 1.375 cents per pound; Whitaker Paper Company, 1.174 cents; Mathers-Lamm Paper Company, 1.187 cents; La-Boiteaux Company, 1.2 cents; Virginia Paper Company, Inc., 1.2 cents; Dobler & Mudge, 1.28 cents; T. A. Cantwell & Co., 1.2 cents; Consolidated Paper Company, 1.5 cents less 1 per cent; Reese & Reese, Inc., 1.245 cents; Walker Goulard Plehn Company, Inc., 1.18 cents, Barton, Duer & Koch Paper Company, 1.195 cents; Old Dominion Paper Company, 1.199 cents; and Bartgis Brothers Company, 1.25 cents.

The Printing Office also received the following bids for 5,000 sheets of gray pressboard: Barton, Duer & Koch Paper Company, $165.00 per M sheets; Bird & Son, Inc., $141.55; R. P. Andrews Paper Company, $162.48; Reese & Reese, Inc., $162.66; Dobler & Mudge Company, $171.40; Old Dominion Paper Company, $174.00; Virginia Paper Company, $175.00; Mathers-Lamm Paper Company, $167.50; Whitaker Paper Company, $162.60; Walker Goulard Plehn Company, Inc., $194.00 less 1 per cent; and Perkins-Goodwin Company, $177.98.

Nekoosa-Edwards Improvements

APPLETON, Wis., October 31, 1932—To provide additional facilities necessary since adding a line of fine papers, the Nekoosa-Edwards Paper Company has started construction of a two-story addition to its mill at Nekoosa, Wis. The building will be 60 by 120 feet and will be of fireproof materials.

Expansion of the finishing room was necessary and ample space for present demands will be provided for this purpose in the upper story. The lower floor will be part of an enlarged paper storage and will be used as a shipping room also. Sidings previously outside the mill will be housed right in the building for convenient all-weather loading.

The new building will be part of a larger unit the company contemplates as production and sales develop in the finer paper grades, according to John E. Alexander, first vice president and general manager.

No contracts are being let for this work. The construction is being handled by the company's engineering department and the crew is composed of mill employees.

Philadelphia Paper Market Conditions Firmer

Widespread Revival of Activity In Local Paper Industry Continues, With Stability the Keynote—Upward Trend Well Sustained, With Extensive and Substantial Groundwork for Recovery Indicated—Paper Stock Prices Higher

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., October 31, 1932—Signs of the times—of improving times—expressed anew by the developments of the past week, are now so evident that he who runs may read and he who reads may become inspired. Quite aside from very considerably improved sales conditions are these outstanding indications of the upward drift of business:

The stiffening of paper stock prices, particularly in the long utterly demoralized common grades; attainment of some measure of success in the campaign for a 100 per cent membership in the Paper Trade Association and in that very closely allied paper section of the Typothetae of Philadelphia; foreshadowing of an early discharge of the receivership of one of the best known paper manufacturing firms of the country.

The widespread revival of activity in the paper trade, experienced in September, has carried over into October with stability the keynote. An upward trend is well defined and extensive, and it is generally believed substantial groundwork for recovery is now laid. Confidence is growing firmer daily and the whole structure makes for stability with conservatism the order of the day. Repeat orders which have been lacking for a long time come up occasionally, so that it would seem as though the October improvement is more than seasonal. Prices are holding firm and there is a general tightening up of the loose methods employed, which has resulted in a healthy restraint on undue optimism. The consensus of opinion is that further improvement will be gradual, and unmistakable signs are at last visible of a throwing off of the distressed feeling to which business has been subjected.

In the paper stock end of the business the week brought with it substantial increases. The price stiffening, however, unfortunately is not due so much to increased mill demand as to a growing scarcity of material. For many months now, prices have been so low as not to warrant packers in gathering up material, save from large producers, even if it could be secured without cost. As a consequence, the board mills have been running on rather scant supplies. In fairness it must be said, however, that while the packers are hopeful that the week's improvement in prices will hold and maybe continue, they are not entirely confident that the slight increase may not result in dumping much material on the market which hitherto has been withheld from it.

Brighter Outlook for Dill & Collins Co.

From Grellet Collins who, with Samuel L. Hammer, has been acting as receiver of the Dill & Collins Company comes announcement of a change in the financial arrangements of the company, the impending result of which will eliminate the receivership and enable the company to continue its position as leaders in any field of quality and at the same time preserve its place in any market for high grade printing papers." Mr. Collins also announces that there will be no change in the personnel, for the same efficient management both in the mill and executive staff will be continued and that quality of product will be guarded with constant effort toward improvement.

In a formal announcement to the trade, Mr. Collins says that further details will be made public as soon as plans now under development are completed, and he adds: "Throughout the present conditions we have not only maintained our standard grades, but have improved them through better methods and materials. Large stocks of paper carried in our warehouse and the central location of our plant, enable us to give exceptional service. This company is extremely grateful for the loyalty shown by our many customers in the past and this letter is sent to you, not only as an assurance of that appreciation, but as a continued pledge of our desire to serve you, with quality and policies unchanged. We feel sure that these adjustments will be of direct benefit both to you and to ourselves, and mark an outstanding milestone in the history of the company."

Garrett-Buchanan to Distribute Hamilton Lines

From the Garrett-Buchanan Company there also came, during the week, an announcement of importance to the printing and paper trades, which the firm says should be of particular concern to those who are spreading the propaganda of buying when possible in the home market. The announcement is that Morgan H. Thomas, president of the company, has just closed arrangements with W. C. Hamilton & Sons. Miquon, Montgomery County, whereby the Garrett-Buchanan Company becomes distributor of the entire line of the Hamilton Mills, consisting of the following grades of paper: Writing Papers: Hamilton Bond, Hamilton Ledger, Hamilton Vellum. Mimeograph Papers: Hamilton Laid Mimeograph, Hamilton Memeopen Bond. Offset and Book Papers: Devon Offset, Hamilton Offset, Hamilton Book, Bright White English Finish. Deckle Edge Text Papers: Hamilton Victorian, Kilmory Book and Cover, Cloudweave, Italian Pressed. Spring Mill Weddings: Both Bristol and Papers.

The Garrett-Buchanan Company will be in a position to make immediate deliveries on any of these fine grades of paper and would be pleased to receive requests for sample books and prices.

Summerfield Eney to Speak

So well received was an address made several weeks ago by Summerfield Eney, Jr., special representative of the Champion Coated Paper Company before the Philadelphia Club of Printing House Craftsmen, that he will be the guest of the Typothetae of Philadelphia at its luncheon meeting in the Downtown Club on next Tuesday, November 1. Mr. Eney has addressed many meetings in the East recently and out-of-town correspondents have had many kind things to say of his observations. Lyt Patterson is chairman of the committee in charge with William A. Meeks, secretary. There came during the week to Mr. Meeks the honor of election as president of the Philadelphia Trade Association Executives.

Paper and Bag Institute Meets

The Philadelphia Paper and Bag Institute held its regular meeting Wednesday, October 19 at the Elks Clubhouse, seventy-five per cent of the membership being in attendance, the evening being specially set aside for salesmen.

William Mansfield, eastern manager of the Union Bag

and Paper Corporation, gave a very illuminating talk on "Knowing Your Merchandise and the Right Psychology in Approaching Customers."

Simon Walter brought a message from Chicago brimful of the recuperative spirit existing among the manufacturers and the paper jobbers, and admonished those in attendance that in order to be successful, honesty in presentation of merchandise has to be maintained.

H. A. Sacks, of 205 East 42nd street, New York City, spoke on the idea of selling specialties and getting away from the beaten path of merchandise. Mr. Sacks was formerly sales manager for The Lily Cup and Specialties Company.

Mr. Gerber, credit manager of Enterprise Paper Company, outlined the credit situation, pointing out that a good salesman should be a good collector. Herman D. Levinson, attorney, presented the legal aspects of keeping out of trouble.

News of the Trade

E. Latimer, Jr., 126 North 4th street, one of the oldest paper jobbers in the city, and specializing in coarse papers, has just been elected to membership in the Paper Trade Association of Philadelphia. Years ago Mr. Latimer was connected with the organization and his re-entrance into its midst is looked upon with great pleasure by his trade associates.

As president of the Paper Trade Association of Philadelphia, William A. Hentz, of the D. L. Ward Company, has arranged quite an elaborate program for a direct mail campaign celebration to be held with a dinner at the Poor Richard Club on November 15.

Mrs. Susanna Compton Datz, widow of William P. Datz, pioneer paper-box manufacturer, of Philadelphia, died during the month, in her 75th year. Mrs. Datz was born in Philadelphia, the daughter of Richard Compton and Ann Abel Compton. A daughter, Mrs. William Dennet, and two sons, Raymond and William P. Datz, Jr., survive.

New Distributors for Hamilton Lines

W. C. Hamilton & Sons, manufacturers of fine papers, of Miquon, Pa., announce the appointment of three Philadelphia distributors to handle all of their mill brands, namely, Garrett-Buchanan Company, Whiting-Patterson Company, Inc., and Wilcox-Walter-Furlong Paper Company. The Hamilton lines which these merchants will sell and carry in stock are—Hamilton Bond, Cadillac Bond, Hamilton's Ledger, Hamilton Vellum, Hamilton's Mimeopen Bond, Hamilton's Mimeograph, Devon Offset, Hamilton Offset, Hamilton's Mellow Book, Bright White English Finish, Kilmory Book and Cover, Victorian Book and Cover, Cloudweave, Italian Pressed, and Spring Mill Vellum. A considerable amount of new business is expected for W. C. Hamilton & Sons, due to this new arrangement in merchandising.

Paper Specifications Hearing

WASHINGTON, D. C., October 26, 1932.—The Select Committee on Paper Specifications created by the Joint Congressional Committee on Printing to prepare specifications for the paper required for the Government Printing Office for the fiscal year beginning March 1, 1933, will hold a special hearing on November 3 "for the purpose of hearing comments and suggestions relative to changes in paper specifications for the ensuing year, to which the various interested representatives of the executive departments and independent offices of the government and the general commercial paper trade are cordially invited."

Bogalusa Takes Crack at Depression

The Bogalusa Paper Company, Bogalusa, La., have placed with the Black-Clawson Company an order for reconstructing their No. 1 board machine, embodying many entirely new features. The wet end will be completely new with 60 inch diameter cylinder molds, all metal vats, suction presses instead of the usual primary presses, two large main suction presses and one regular press.

The present dryer section will be followed by a three-roll smoothing stack and size press. Twelve new dryers will be installed after the size press. This size press will produce a much better printing surface, besides adding to the bulk of the sheet.

The drive will be entirely new, of the enclosed spiral bevel gear type. Cylinder molds and suction presses ahead of the first press will be sectionally electric driven.

The machine, when completed, will be epoch making and will produce board at the rate of five hundred feet per minute, a speed, so far, unknown in the paperboard industry.

The executives of the Bogalusa Paper Company, General Manager Cody and Superintendent Suter, together with the engineering force of the Black-Clawson Company, have been working on every detail of this machine for the last four months, determined to produce a board machine far in advance of anything heretofore known.

The Bogalusa Paper Company is a firm believer that only the best equipped mills will be able to succeed in the future and that now is the time to put the productive equipment of their plants into very best of condition. They also believe that it is their patriotic duty to go ahead with reconstruction work now in order to help us get over the depression and return to normalcy.

The Miamisburg Paper Company, Miamisburg, Ohio, took another punch by installing a suction press with spiral drive and a new size press with dryers on their 128 inch machine.

The Hartford City Paper Company, Hartford City, Indiana, added three suction rolls on their 95 inch machine and all new spiral drives.

Carthage Papermaker Inc. Formed

[FROM OUR REGULAR CORRESPONDENT]

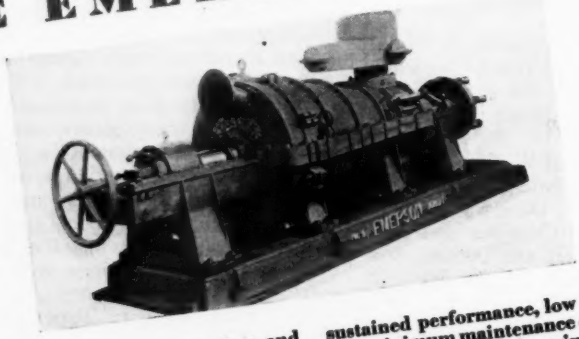
CARTHAGE, N. Y., October 29, 1932—Incorporation articles were filed this week by the newly organized Carthage Papermakers Inc., which plans to start operations immediately in the former plant of the Carthage Pulp and Board Company. The stockholders in the company consist of a number of former employees of the defunct concern and several prominent business men who were anxious to have the mill in operation. Among the incorporators are C. J. Slack, E. H. Jones, W. J. Cassidy, J. E. Miller and B. W. Thomas. The new concern is authorized to issue 800 shares of stock with a par value of $25 which have already been placed on sale in the Chamber of Commerce rooms.

Plans for reopening the plant were announced recently and it was decided to file incorporation articles in order to raise sufficient working capital. The incorporators are also the directors and will meet within a few days when officers will be elected. Arrangements have been made for taking over the stock of raw materials at the plant and it is expected that operations will be under way within a few days. Among the chief products to be turned out will be manila paper, tag board and container board. Plans call for the operation of only a portion of the equipment at the start which will have an output of sixteen tons daily. About 35 hands will be employed.

VOITH

The EMERSON Economy

THE EMERSON JORDAN



Emerson Jordans, made in six sizes and equipped with Bolton Inverted Wedge Plugs and Timken End Bearings, are setting new records for quality production, sustained performance, low operating cost and minimum maintenance expense. Only jordans like these belong in modern mills. Can you do without them in yours?

THE EMERSON BEATER

From fine rag to coarse papers, Emerson Beaters are helping makers of every grade of paper to improve quality and uniformity, lower beater and engine room costs. Without this efficiency and economy, you cannot hope to meet competition at a profit. Have you the facts about Emerson Beaters?

The EMERSON MANUFACTURING COMPANY

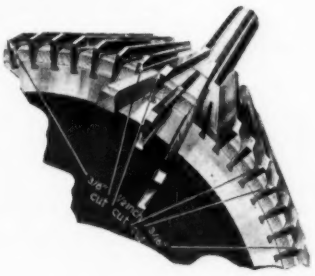
LAWRENCE ▲ ▲ MASSACHUSETTS

BOLTON Ticket

THE BOLTON INVERTED WEDGE PLUG

The Old

Wood wedges larger at top than at bottom. Knives supported at only a few points.



The New

Wedge woods larger at bottom than at top. Woods or knives cannot come out.

Under the severest kind of service—in chip board and coarse waste paper mills—Bolton Inverted Wedge Plugs are running 12 months without a stop. Production per jordan is multiplied, operating and maintenance costs reduced, shutdowns are rare. *Can you use this kind of service in your mill?*

BOLTON KNIVES FOR PULP AND PAPER MILLS

Whatever the conditions, there is a Bolton Knife that will cut cleaner, hold its edge longer and reduce your cutting costs to an absolute minimum. Every one guaranteed without reservation as to quality, finish and fit. Pulp mill knives for chippers, barkers, hogs, shredders. Paper mill knives for washers, beaters, refiners, jordans, rotary sheet cutters, trimmers, flat bed cutters. Can be made of alloy metals, bronzes or steels.

JOHN W. BOLTON AND SONS, Inc.

LAWRENCE ▲ ▲ MASSACHUSETTS

Ontario Paper Manufacturers More Active

Fine Paper Plants Well Employed, Although Operations Are Below Capacity — Demand for Book and Offset Papers Well Sustained—Bond and Writing Paper Machines Fairly Busy —Wrapping Paper Mills Rather Inactive

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., October 31, 1932—The month in wholesale paper circles in Ontario closed with somewhat improved conditions and larger sales in some lines of paper, although on the whole the situation must be described as spotty. Not a few of the paper merchants report fairly good business on the whole during the month of October and had it kept up steadily throughout the month business would have been back on its old time prosperous basis. As it was a couple of months of good business was followed by a week or ten days of inactivity. October showed, however, that the wholesale paper trade has taken a turn for the better and while small quantity buying is still the order the sales are bulking larger at the end of each month. The printing trade is improving somewhat and has been making slightly larger requisitions and it is also noted that there is a slightly better demand for the higher grades of paper, which has not existed for some time. Of course the big demand yet is for the cheaper grades but it appears to have been lessened considerably during the past month or six weeks.

There has been gradually increasing activity in the manufacturing end of the paper trade and while in no department has capacity been reached most of the mills are quite well employed. This refers chiefly to the fine paper plants. There is a well sustained demand for book and offset papers, while bond, writing and other fine paper manufacturers are able to keep their machines fairly busy. The paper converting trade is showing a little more activity after a quiet period, particularly in the envelope department, although manufactured stationery lines are still moving slowly. Wrapping paper mills are rather inactive and the paper board market is in an unsatisfactory shape. The closing down of the mills of the Canadian Paperboard Company, with the possible exception of Montreal, has not removed any tonnage to speak of from the board market, as the Hinde & Dauch Company is to step into the breach and begin the manufacture of board. Quite a number of Canadian Paperboard employees are being taken over by Hinde & Dauch, whose paper board machine is expected to get into action early in November.

Notes and Jottings of the Trade

The paper box industry throughout Ontario was shocked to learn of the untimely death of Roy Tresidder, of the paper box manufacturing firm in Hamilton of Tresidder Bros., whose dead body was taken from Lake Ontario.

Announcement is made that the Port Royal Pulp and Paper Company, which took over the Nashwaak Paper Company at Saint John, N. B., will burn 100 tons of Nova Scotian coal daily and that contracts for this have been signed.

Consummation of a sale-of-power contract with the Ontario Paper Company, Thorold, Ont., that will provide the Hydro with a revenue annually of from $250,000 to $300,000 was announced by the Ontario Power Commission in Toronto. The power disposed of is surplus power and the Hydro has undertaken to provide the electrical equipment required to deliver the surplus energy in usable form for steam purposes. In this case the equipment will cost about $325,000.

Being dissatisfied with present assessment on their properties in Thorold Township, the Beaverboard Fibre Company and Ontario Paper Company believe that if these properties were part of the town of Thorold more consideration might be received in the matter of taxation. A definite movement is under way for the annexation of Beaverboard section of Thorold Township to the town of Thorold.

R. Girouard, pulpwood dealer, of Smith Falls, Ont., says that the market for poplar pulpwood in which he specializes is not in good condition at the present time. Mills have a full supply of such wood for the next eighteen months and there is much yet to be shipped under old contracts which were entered into in 1931. If industrial recovery comes before next Spring there may be a small demand, states Mr. Girouard.

B. J. Heger, who for some time was business manager of the Newaygo Timber Company, Port Arthur, has been transferred to the head office of the parent company, the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis. H. S. Mosher has succeeded Mr. Heger. The Newaygo Timber Company is purchasing some pulpwood this season but not nearly as much as usual.

The directors of Canadian Industries, Ltd., and others connected with chemical industries visited Shawinigan Falls recently to make a tour of inspection of the new cellophane plant erected by the company in that city and now producing a very fine quality of cellophane to supply the Canadian and Newfoundland markets. The plant was completed this Spring and since then production has been constantly increasing.

W. H. Russell, of the Russell Timber Company, Port Arthur, Ont., says that locally there does not seem to be much pulpwood demand. The Newaygo Timber Company, a subsidiary of Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., is carrying out a contract for 24,000 cords for export. Provincial Paper, Ltd., Port Arthur, is securing 50,000 cords, most of which is to be cut by settlers, while some of the wood will be harvested from the company's own limits. It is understood that the prices on these two contracts range from $6.00 to $6.50 basis in booms or at mill. Stocks of pulpwood in the yards of the pulp and paper manufacturers are somewhat reduced but there is still a large amount on hand.

The Manchester-McGregor Paper Box Company, Richmond street, Toronto, are installing equipment preparatory to going into the manufacture of folding boxes in addition to their other lines.

Fire Damages Pulpwood at Deferiet

DEFERIET, N. Y., October 29, 1932—Fire breaking out in the huge pile of pulpwood at the local branch of the St. Regis Paper Company caused considerable damage before being extinguished. About 200,000 cords were in the pile and the fire started on the side that carries the pulpwood to the grinder. All fire equipment at the mill was brought into action but for a time it was feared that the flames would spread rapidly because of a strong wind blowing. Fire departments from other villages were summoned but the flames were extinguished upon their arrival.

TAPPI Pacific Section Meets in Seattle

On October 21 and 22 the rapidly growing and enthusiastic Pacific Section of the Technical Association of the Pulp and Paper Industry met in the New Washington hotel in Seattle, Wash. It was in this hotel that the section was organized in June, 1929.

The meeting was called to order by R. B. Hansen, Pulp Division, Weyerhaeuser Timber Company, Longview, Washington, chairman of the section, who welcomed the members and their guests, following which he read a prepared message from Allen Abrams, president of TAPPI, who was unable to attend the meeting.

E. C. Jahn of the University of Idaho, School of Forestry, read a paper on "The Action of Ammonium Sulphite on Wood." Pulping wood with ammonium sulphite falls into that class of process known as semi-chemical wherein a wood is digested with a milk cooking agent, followed by mechanical disintegration. Lowland white fir (Abies Grandis) was selected as the wood and the treatment resulted in producing a yield of 72 to 73 per cent by digesting with 26 to 35 per cent ammonium sulphite for 6 to 7 hours total cooking time, and with a maximum temperature of 175 deg. C.

Svarre Hazelquist of the Weyerhaeuser Timber Company read a paper on "Acid Penetration in Sulphite Pulping." It was stated that an increase in temperature brings about an increase in the rate of penetration. An increase in free SO_2 increases the rate of penetration of the free SO_2 to an even greater extent, and somewhat decreases the combined SO_2 but to a somewhat lesser extent.

From the results of tests it was shown that penetration is not a deciding factor in the handling of a sulphite digester, especially with initial acid temperatures of 35 deg. C. or higher. It is nearly impossible to bring the contents of a commercial digester of 110 deg. C. before penetration of the chips is complete, unless the initial acid temperature is under 35 deg. C. If local overheating is great enough it is possible that a chip is "browned" even though the penetration has been thorough.

Ralph Reid of St. Helens Pulp & Paper Company, read a paper on "Some Variations in Cooking Kraft Pulp." As the result of a report appearing in a Swedish publication of operations at the Kramfors A/B mill, studies were made of local operations which resulted in the following procedure. The moisture in the wood charged into a digester is estimated by weighing a measured volume of chips, the sample being taken as the digester is filled. The cooking liquor is tested and the proper volume, to give the required amount of active alkali is run into the digester. Then enough black liquor is added so as to make the total volume of water, including water in the chips as well as the water in the white and black liquors, the same for each digester. The only variation is the amount of active alkali used to cook woods cut at various seasons of the year.

Professor H. K. Benson of the chemical engineering department of the University of Washington, read a paper on "The Utilization of Sulphite Waste Liquor." Among the uses stated for this material are the following: road binder, linoleum cement, coal briquetting binder, tanning material, alcohol, fuel, soil humus, agricultural spray, dyestuffs, printing ink, and laundry soap.

W. Hirschkind of the Great Western Electrochemical Company read a paper on "The Bleaching of Groundwood." In this paper Mr. Hirschkind advocated the use of zinc hydrosulphite. Among the advantages cited are the following: The hydrosulphite acts rapidly even at low temperature. Less than ten minutes is required to effect adequate bleaching. It has a brightening effect superior to sulphur dioxide. Only a few tenths of one per cent of hydrosulphite, based on the pulp weight, is required and no recovery is necessary. Many tons of West Coast stock for news print are treated daily.

M. W. Black of the Inland Empire Paper Company, Spokane, Washington, read a paper on "Static Electricity in Paper." As a final conclusion Mr. Black states that the practical method of alleviating static electricity in paper is by proper control of the moisture content of the atmosphere in contact with it.

A feature of each of the sessions was the question box. Among the questions asked are the following:

QUESTION: What is the effect on the physical properties of a pulp which has been cooked with an acid high in combined SO_2 compared with one which has been cooked with low combined SO_2?

ANSWERS: Considering 1.40 as a high combined and 1.10 as a low combined, the higher will give pulp of better color, higher strength, easier bleaching and larger yield. The above statement is based on the free being the same in both cases. The higher combined SO_2 produces a harder bleaching pulp of lower Mullen strength.

It has been our experience that wood cooked with acid high in combined will result in a whiter pulp without any appreciable effect on the physical properties. Too high a combined SO_2 has resulted in the carrying over of finely divided calcium bisulphite with the pulp itself.

QUESTION: Should there be a definite relationship between the chip moisture content and the per cent combined SO_2 required in the cooking liquor?

ANSWERS: Yes, for in Eastern mills where seasoned wood is used having a lower moisture content, much lower combined is used than on the West Coast where all wood used carries from 40 to 50 per cent water.

Over any wide chip moisture variation there should also be a corresponding variation in the combined SO_2. This must be of such a degree as to compensate for dilution brought about by wetter chips. For variation of from 2 to 6 per cent in moisture the variation in the combined would be very small.

QUESTION: Is there any formation of SO_3 within a digester? If not, why is the accumulator acid higher in SO_3 than the acid plant acid?

ANSWERS: There is. Sutermeister makes this statement in his book on the Chemistry of Pulp and Paper Making.

There is SO_3 form in the digester and the accumulation of SO_3 in the accumulator acid is one proof of this.

QUESTION: If we are to come into contact with cooking acids with high free SO_2 that is, from 8 to 14 per cent, have we any methods of coping with the needs for successful acid of metric determination?

ANSWERS: This can be controlled with refrigeration.

About 10 per cent acid we have not yet developed an accurate mill control test for either combined or free SO_2. This test will without doubt, be required within several years.

QUESTION: What is the proper method for handling and washing sulphite blow pit?

ANSWERS: Several different methods are used and there is a difference of opinion as to which is the better.

Blow digester with from 2 to 3 feet of water in the pit having wash water on during blow. When finished blowing, allow pit to drain and continue washing.

QUESTION: Can cooking methods be a controlling factor on tear and fold characteristics?

ANSWER: Cooking methods may influence the fold and tear but the fact that no mill can give high fold, high tear and high Mullen specifications in its pulp without fail, necessarily makes it doubtful that the fold and tear can be controlled completely in the digester house.

QUESTION: Assuming that delignification is a chemical reaction, is there any heat gained or lost by the reaction?

QUESTION: What is the effect of varying the proportion of lift to drop on flat screen diaphragm with particular reference to capacity cleanliness of accepted pulp and cleanliness of screen plate?

ANSWER: I believe heat is given off. For example, many times a digester shut in will increase considerable in temperature and may burn even though all steam has been turned entirely off.

QUESTION: In cooking in a sulphite digester would it not be better to forget all about the temperature curve and measure a given amount of steam into a given amount of wood and acid and to add this steam in such a way that the acid is broken down as desired?

ANSWER: I believe it would be better to forget all about the temperature curve and to add the steam by steam flow meter and in such a way that the stronger was retained for a maximum length of time. That is, the digester should be steamed very slowly with an increasing amount of steam to a maximum and then with a gradually decreasing amount of steam clear up to the point of flow down.

QUESTION: Where is the hottest zone of a sulphite digester and where is the coldest zone?

ANSWER: Some authorities claim it is along the central axis of the digester where the hottest temperature will be found and the coldest zone will be in the lower portion of cylindrical section adjacent to the lining and in the bottom cone. I do not believe that this necessarily should be true, it all depending upon the strength of acid and the way in which the digester was steamed. An acid strong in free SO_2 need not permit a steam dried different temperature throughout the different portions of the digester.

QUESTION: Do you think it feasible to add a very definite weight of chips to a digester and a very definite volume of acid of a given strength and to ignore, so far as possible, the height of chips in the digester?

ANSWER: If the moisture content of the chips does not vary by more than 5 per cent and the size of the chips is not allowed to vary. Judging the way the digesters are filled we do not believe that the height of the chips in the digesters will be materially different from one time to another.

QUESTION: What is the function of the combined SO_2 in sulphite cooking? Is this combined necessary at all?

QUESTION: In an unbleached pulp either sulphite or kraft, is the bleachability directly proportional to the lignin content?

ANSWER: There seem to be other factors that influence bleaching of sulphite other than lignin content of the pulp.

QUESTION: Under what conditions, if at all, will bleached sulphite pulp selectively absorb calcium chloride so that there is unequal distribution of chlorides between the stock and white water?

ANSWERS: When pulp has not been in contact with the water for sufficient time for equilibrium conditions to be established then the pulp may be said to selectively absorb a given salt—chloride in this case.

I do not believe that there can possibly be selective absorption by pulp of calcium chloride. If there is more calcium chloride in the stock than there is in the water it simply means that the two have not been in contact long enough for equal distribution. Pulp does not selectively absorb a salt.

QUESTION: Is chlorine or chloramine as effective as copper sulphate in controlling algae?

ANSWER: Chlorine will kill certain types of algae. Copper sulphate kills all types of algae.

QUESTION: What is the best method for filtering bleach liquor?

ANSWER: Filter through glass wool.

QUESTION: Is there any known reliable method for measuring color of bleached pulp other than by means of the usually used color wheels?

QUESTION: What is the water requirement per ton of pulp for washing sulphite after high density bleaching?

ANSWER: Not less than 50,000 gallons per ton where pulp is subjected to double stage washing.

This will depend entirely upon the treatment the pulp receives between the station and the pulp machine.

QUESTION: Is there any reliable method known for determining what color recession will take place in a bleached sulphite stock?

QUESTION: Within ordinary bleachability ranges, 4 to 5½ per cent chlorine, does the strength of an unbleached pulp vary with the chlorine demand?

ANSWERS: There is no direct relationship between the strength and chlorine demand, at least not enough to rely upon, one test giving an indication of what the other will be.

There is no definite proof that a cook with a chlorine demand of 5½ per cent chlorine should be any stronger than one with a demand of 4 per cent chlorine—all other variables being constant—nor is there any evidence that the opposite is true.

QUESTION: Is there any definite reason why a tear curve should decrease with the hydration as determined by standard beater methods while the fold and Mullen curves slope upward?

ANSWER: We believe that a tear is more or less controlled by a cementing of the fibers together while a fold and Mullen depends more on the fiber strength. Therefore, as hydration continues, or the building up of hydrated cellulose or cement which is weaker in tear than the fiber, the tear curve must necessarily drop.

QUESTION: In kraft mills, using disk evaporators, what per cent of the total soda losses are stack losses?

QUESTION: When a kraft mill is equipped with a lime kiln for lime recovery, what amount of fresh lime per ton will be necessary for normal operation?

ANSWER: With a good settling system for green liquor and good control of this lime kiln, lime recovery should be from 90 to 95 per cent.

QUESTION: Upon what physical characteristic of a fiber does the tear depend, and has it a general correlation with the other chemical and physical tests?

ANSWER: The tear quality of a pulp is closely related to fiber length. As beating progresses tear decreases and Mullen increases.

The tear depends upon the length of the fiber to a great extent and not upon the state of hydration. This is shown by the fact that an increase in hydration does not increase the tear but does increase the Mullen and fold. There is not a direct relationship between the fold and Mullen as compared with the tear.

QUESTION: What type of fourdrinier wire is most satisfactory for a pulp drying machine?

ANSWER: A 40 mesh single cable wire. If white water is recovered a 30 mesh wire is better.

QUESTION: When hydrated fibers are dried do they completely lose the water of hydration? If so, would this loss be as great in a sheet dried at a low temperature as one dried at a high temperature to the same moisture content?

ANSWER: There would be no difference whether the pulp was dried at a low temperature or a high temperature. So long as it was dried to the same moisture content it would lose the same water of hydration.

QUESTION: What controllable factors regulate the alkalinity of bleach liquor?

ANSWER: Rate of chlorination, end point, concentration of finished bleach liquor, temperature and agitation.

QUESTION: How big a part of bleaching shrinkage can be laid to uneconomical fiber transportation?

ANSWER: In one bleached sulphite mill, where an 8 per cent shrinkage was figured for loss in bleaching, 2 per cent was due to fiber loss in transportation. With Oliver washers stock losses should not average .1 of 1 per cent. This depends to a great extent upon the type of washer equipment and upon the white water control. In one local mill the loss due to washers was fully 50 per cent of a total 10 per cent shrinkage charged against the bleach plant. In any case, if the white water system is not carefully controlled the fiber losses are without doubt a major part in the so called bleach plant shrinkage.

QUESTION: How can two-sidedness of a sheet of paper be decreased?

QUESTION: How far can dyestuffs go to improve the brilliancy of a sheet of paper?

QUESTION: Do you believe that the amount of depreciation written off over a period of time should vary according to the time operated or according to the amount of production?

ANSWER: Your question might be answered differently by some other industry. However, in the pulp and paper industry we think it obvious that most if not all, equipment should be depreciated neither to time operated nor according to the amount of production, but rather on a straight time basis. This for the reason that most pulp and paper mill equipment and machinery depreciates almost as much when standing idle as when being operated to capacity.

QUESTION: Suppose that all pulp and paper mills were to go on a five day operating basis, could you expect your plant to last longer? Do you think that such a shortening of operating time would have any effect upon obsolescence? Would the five day week have any effect on maintenance costs?

ANSWER: We do not expect the plant to last longer, nor do we think that this arrangement would have any effect on obsolescence. The five day week would in all probability increase maintenance costs.

QUESTION: Assuming that an accounting system has the following four general accounts often termed commercial costs: (1) Shipping Expense (2) Sales Expense (3) Advertising Expense (4) Administrative Expense. Assuming that net sales will be f. o. b. mill returns, into which account do you believe Traffic Department Costs should be placed?

ANSWER: We are not just clear as to what this member means but if we are guessing right, we would put most of the traffic department costs under shipping expense. This would, of course, depend upon just what these traffic department costs might be.

QUESTION: Into which of the preceding accounts would you throw association dues, assessments, subscriptions?

ANSWER: We believe these three items should be placed under advertising expense. We might, however, make a distinction with respect to the kind of organization, association, and so forth, according to the purpose served.

QUESTION: Into which above account would you place cost of periodicals?

ANSWER: This cost might be charged according to purpose served or lumped under administrative expense.

QUESTION: Into which account would you place credit collection costs?

ANSWER: We believe that this item should be placed under selling expense.

QUESTION: Whether spare parts such as motors, press rolls, pump impellers, are kept in stock to be used while making repairs, after the old parts are repaired, the spare part is returned to the store room. Would you capitalize these parts in the valuation of the plant or charge them out to maintenance the first time they were taken from the store room, or carry them in the store with no charge to maintenance except the cost of repair of the old part?

QUESTION: Would you depreciate such parts if they were never taken from the store room?

ANSWER: We would like to have not only an accountant's answer to these questions but also the reaction of a superintendent interested in equitable costs.

QUESTION: What is your reaction to passing on to the operating crew, figures giving the detailed costs of operating their department?

ANSWER: We think that in most all cases these detailed cost figures should be passed on to and clearly explained to the foreman of the department, and that the foreman in turn should make his men thoroughly familiar with them. This would obviously make for a better spirit and freeness and could not help but be reflected into better quality, greater uniformity, and greater production at lower costs.

QUESTION: In charting operating data, should not as much effort be placed on effective chart scales, as on quantity of charts produced?

ANSWER: It should be the object of a chart to show the relation of one event to another, and to accomplish this requirement, the scales should be so arranged as to show the magnitude of the variables. This magnitude should be such that a minor variation should not have appeared on the chart in a manner as to appear a controlling factor.

QUESTION: Now that some mills have been fairly successful in getting away from "units" and 35 per cent bleach powder, why can not the technical man and cost accountant get away from cumbersome "a.d.?"

QUESTION: The air dry standard for calculating pulp weights was adopted by the industry somewhere between the years 1880 and 1890. There should be no trouble in doing away with the term air dry and using the bone dry figure, except that the price of pulp would have to go up, and all mill tonnage would have to come down.

ANSWER: Technical men may not be able to get rid of it at this meeting, but if it is continually brought to our attention, action will be more probable.

QUESTION: A member writes that after many years of thought, he has not yet arrived at a worthwhile system for numbering laboratory and technical reports, so that a consecutive system of numbers might be given to all reports, including those which never leave the department and those which pass out to the operating or administerating departments. This member would like the reaction of this assembly or any individual who has had experience with the problem.

QUESTION: Another member writes that he would like information regarding a filing system for a good sized laboratory and technical department, which department

handles shipments, complaints, routine reports, and a thousand and one other things.

QUESTION: An accounting system has a separate account entitled, "Technical Department and Laboratory." Would you charge this account with the company's membership in foreign research laboratories? If not, where would you charge this cost? Suppose this cost was assumed largely for the sake of advertising, would you still charge this item as before?

R. B. Wolfe of the Weyerhaeuser Timber Company, talked on the general economics of the pulp industry and Ralph Shaffer, president of the Shaffer Box Company gave a talk on "The Effect of Depreciated Exchanges."

On Saturday afternoon the members attended the football game between the University of California and the University of Washington, and in the evening an enjoyable banquet was held. This meeting was featured by a special program for ladies.

The Officers elected for the coming year are as follows: R. B. Hansen, Weyerhaeuser Timber Company, chairman; R. J. Schadt, Hawley Pulp and Paper Company, vice chairman; and A. S. Quinn, Stebbins Engineering and Manufacturing Company, Seattle, secretary-treasurer.

Delaware Valley TAPPI Hears Baker

After its summer recess the Delaware Valley Section of the Technical Association of the Pulp and Paper Industry held its first fall meeting at the Engineers Club in Philadelphia on October 28 with more than fifty present.

C. M. Baker Speaks

W. R. Maull, vice president of Dill & Collins and chairman of the Section introduced the speaker of the evening. C. M. Baker, engineer, American Paper and Pulp Association, who spoke on "White Water Utilization in the Paper Mills."

Mr. Baker described his experience with a number of mills. The attitude of many companies is that white water re-use can be accomplished only at great expense and trouble but in the case of most mills, Mr. Baker pointed out that although the problem of handling white water is individual with each mill it is not a difficult one and if certain definite principles are adhered to a system can be worked out for nearly every type of mill.

The first requirement in attacking the problem is to make a thorough white water survey so that the fiber losses may be definitely ascertained both from the location and quantitative standpoints. For measuring the water Mr. Baker showed in lantern slides the two types of weirs that may be used. One, a square notch type for large volumes and the other a v-notch type when the volume is much less. In sampling the white water Mr. Baker stated that there is no mechanical device on the market that does a satisfactory job since they sample in proportion to velocity of flow and do not give consideration to volume. He recommended sampling by hand and having the quantity taken each time proportional to the height of the water above the weir notch base.

A number of lantern slides were used to illustrate the way in which a white water system may be adapted to mills having Fourdrinier, harper or cylinder type machines. Development of white water utilization in any of these types of mills involves two elements, equipment and personnel. The equipment for recirculation can be put into successful operation only by making adjustments in the process to compensate for returned furnish formerly wasted. Personnel must be open-minded and trained in operating the new system. A careful study and analysis of all difficulties encountered will lead to satisfactory adjustments. With proper adjustment of showers, white water containing ½ to 3 pounds of stock per 1,000 gallons may be successfully used in them.

It is the accumulation of slime rather than stock that clogs showers. Slime control is necessary for successful white water utilization. Mr. Baker stated that the treatment of water with chlorine and ammonia will keep the system sterilized. If chlorine alone is used much of it is lost by being taken up by the fibers but if ammonia is used with it the chlorine loss is less and its action although delayed is particularly effective since it is present in the white water which comes from the paper machine.

Other Speakers

R. B. Martin of Wallace & Tiernan, Inc., explained some of the technical details regarding the use of chloramine treatment.

C. M. Howell of the Scott Paper Company, stated that he felt that the paper industry is much in debt to Mr. Baker for the excellent work he has done in studying the white water problems.

Others who entered into the discussion included A. J. Luettgen, P. H. Glatfelter Company, Spring Grove, Pa.; J. d'A. Clark, Scott Paper Company, Chester, Pa.; R. W. Kumler, Bennett Inc., Cambridge, Mass.; A. W. Wickham, MacAndrews & Forbes, Inc., Camden, N. J.; G. J. Landt, Continental-Diamond Fibre Company, Bridgeport, Pa.; and L. M. Booth, Booth Chemical Company, Elizabeth, N. J.

J. E. Plumstead, Jessup & Moore Paper Company, Wilmington, Del., reported that the Section membership committee is working out plans for building up the attendance at meetings.

A straw vote of the presidential candidates was taken and 43 out of 48 votes went to Hoover; Roosevelt received 3 and Thomas 2.

Those Who Attended

Among those present were the following: A. J. Luettgen, P. H. Glatfelter Company, Spring Grove, Pa.; J. E. Plumstead, Jessup & Moore Paper Company, Wilmington, Del.; J. L. Mullin, Jessup & Moore Paper Company; G. J. Landt, Continental-Diamond Fibre Company, Bridgeport, Pa., E. N. Wennberg, Continental-Diamond Fibre Company; W. M. Shoemaker, National Vulcanized Fibre Company, Yorklyn, Del.; Charles McDowell, McDowell Paper Mills, Manayunk, Pa.; F. J. McAndrews, McDowell Paper Mills; M. Craig Maxwell, McDowell Paper Mills; F. W. Varden, Barber Asphalt Company, Philadelphia, Pa.; Valdemar Jacobsen, National Aniline and Chemical Company, Philadelphia, Pa.; C. M. Howell, Scott Paper Company, Chester, Pa.; J. d'A. Clark, Scott Paper Company; C. E. Peters, Riegel Paper Corporation, Riegelsville, Pa.; O. C. Cordes, Westinghouse Electric and Manufacturing Company, Philadelphia, Pa.; Jacob Edge, Downingtown Manufacturing Company, Downingtown, Pa.; E. N. Glauner, Downingtown Manufacturing Company; J. Roslund, Moore & White Company, Philadelphia, Pa.; G. B. Martin, General Dyestuff Corporation, Philadelphia, Pa.; C. W. Rivise, Philadelphia, Pa.; R. W. Kumler. Bennett, Inc., Cambridge, Mass.; G. H. Detwiler, Heller & Merz Corporation, Philadelphia, Pa.; C. A. Shubert, Dill & Collins Company, Philadelphia, Pa.; C. J. Kern, Moore & White Company, Philadelphia, Pa.; E. J. Albert, Thwing Instrument Company, Philadelphia, Pa.; S. M. Hesser, Hinde & Dauch Paper Company, Gloucester City, N. J.; A. W. Wickham, MacAndrews & Forbes, Inc., Camden, N. J.; R. W. Shaffer, MacAndrews & Forbes, Inc.; R. B. Mar-

(Continued on page 47)

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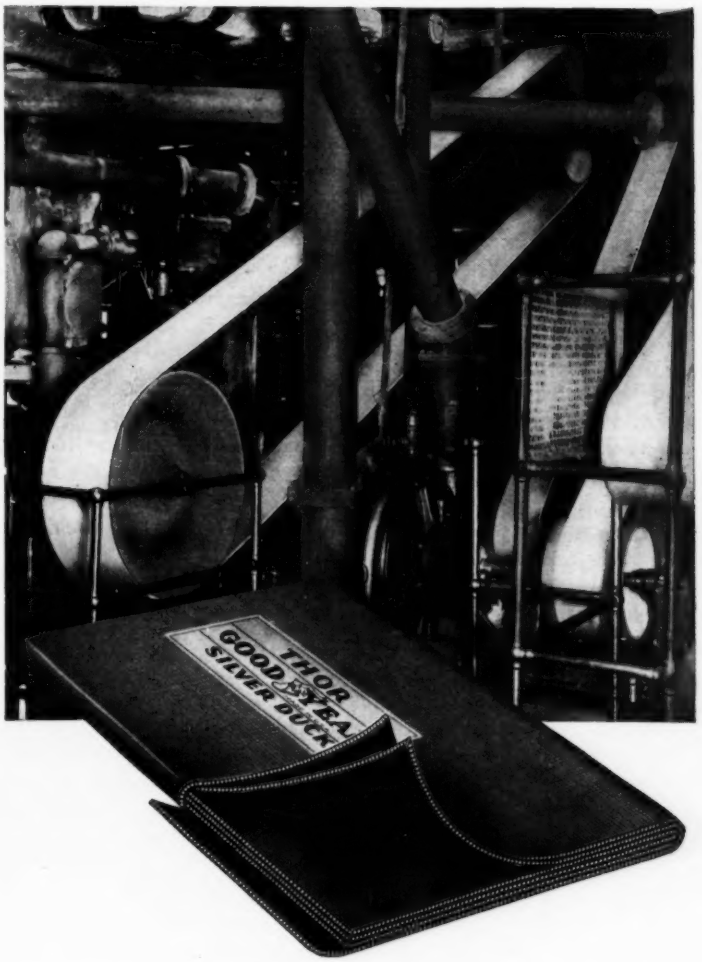

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NEWS PRINT IN CANADA

The long-anticipated "shake-down" in the Canadian news print industry appears to be at hand, and announcements of far-reaching import to all the interests concerned are expected to be made in the near future. While these announcements are anticipated nobody, not even those who are in a position to have inside knowledge of developments, appears to be able to forecast what their import will be for at the present time powerful interests are at loggerheads and a bitter price competition, with attendant switching of contracts, is under way.

During the past week protracted meetings of the Bankers' Committee which is endeavoring to bring about a major consolidation of the leading Canadian news print companies have been held. The closest secrecy is being maintained as to what has transpired at these meetings, and the only inkling as to what their purport has been is the semi-official intimation that something of a definite nature must develop in the near future. The situation appears to be that while the various Canadian companies are still unable to agree upon terms of amalgamation, opposition between them as a whole and the International Paper Company has further developed, the feeling being that in the general "sauve qui peut" the latter company has been taking unusually aggressive measures to secure such a share of the business offering as will permit it to run its Canadian mills at or near capacity. On the other hand it is certain that aggressive measures to the same end have been taken by more than one Canadian company and rumor has it that one of these companies has signed a contract for the delivery of a considerable tonnage of news print at $32 per ton, while another is offering news print on a New York delivery basis of $40 per ton, which compares with the present official rate of $45 per ton established by the International Paper Company after Price Bros. & Co. had cut the official rate from $53 to $47.

Switching of various contracts from Canadian controlled companies to the International Paper Company, including those of two of the leading papers in Canada, during the past couple of weeks has been followed by rumors that International Paper is taking the lead in the cut-throat competition that now prevails, but this is denied by International, which has announced that it has not departed from the price schedule recently announced.

Opinions differ as to whether Price Bros. & Co. or International started the price-cutting war which is now raging so acutely, but there appears no reason to doubt that for many months past the price of news print has been under the official standard of $53 which prevailed until a few weeks ago.

Now does there seem any reason to doubt that the news print industry is due for a major surgical operation which cannot long be delayed. The opinion is that the Canadian companies will be forced into consolidation, despite the wide divergencies they at present display regarding the terms of consolidation. The opinion is further expressed that following this consolidation production will have to be concentrated in the low-cost modern mills, with all the other mills closed down, permanently in some cases and until market recovery in the others.

It is claimed that if production could be concentrated in the more efficient mills, so that these could be kept running at not less than 80 per cent of capacity, news print could be produced at a base cost varying from $18 to $23 per ton, which would permit of a profit with the selling cost at $45 per ton.

Where the International Paper Company would come into the picture is a matter of conjecture; but the presence in Montreal during the past week of Mr. A. R. Graustein, the president of that company, indicates that the company is following the developments anxiously. The company is one of the major news print producers in Canada and has there and in Newfoundland the control of timber limits covering an area more than half the size of the whole of the State of New York. Some time ago the company made public an outline of the terms and conditions which might make its entry into a general consolidation possible, but the strength of its position is such that no progress appears to have been made to this end and the belief now is that it will remain independent whatever may happen in the case of the other large producers there, most of which are in process of financial reorganization.

Meanwhile the fact that the news print plants in Canada, taken as a whole, are operating at but little above one-third of total installed capacity indicates to drastic measures necessary to bring actual production down to an economic basis.

Hon. L. A. Taschereau, Premier of Quebec, in an interview on the subject stated that the situation "must be redressed soon if the news print industry is to be saved from irreparable damage." "Today," he said, "a situation has

arisen in the news print industry that is endangering its whole fabric and future, and these same men are unable to agree on remedies to be applied to the present situation, thereby placing their own business in a quandary. All I can say is that the remedy is in their own hands.

"I have not been approached as regards intervention in the matter, although I have been kept well informed on what was going on. Whether I would interfere, if asked to do so, remains to be seen."

Canadian News Print Exports

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., October 31, 1932—According to the Dominion Bureau of Statistics the value of news print exports from Canada in September was sharply lower than in the previous month and also by comparison with the same month last year. September exports valued at $5,424,021 against $7,251,752 in August and $8,445,920 in September of 1931.

Out of the $5,424,021 of exports in September, shipments of news print to the United States had a value of $4,387,276.

The total export of paper and manufactures of paper in September was valued at $5,633,443, of which $4,415,759 went to the United States and $507,196 to the United Kingdom. The value in August was $7,545,883 and in September last year $8,754,089.

Pulpwood exported in September was valued at $738,979 as against $580,429 in August and $1,205,286 in September last year.

The export of wood pulp and screenings in September was valued at $1,372,728, compared with $1,486,689 in August and $2,330,276 in September a year ago.

The United States was the principal market for exports of pulpwood, wood pulp and screenings.

For the nine months of the current year to September 30, exports of news print from Canada were valued at $64,014,042, which compares with $81,420,910 for the same period of 1931.

Export of wood pulp and screenings also reveals a sharp decline on a similar comparison, the total value for the nine months of 1932 being placed at $13,949,596 as against $22,343,710 for the corresponding period of last year.

Frank L. Scott Co. Taken Over

The Stevens & Thompson Paper Company, of North Hoosick, N. Y., have bought and will take over on January 1, 1933, the entire business of Frank L. Scott Company, 270 Madison Avenue, New York City.

The Frank L. Scott Company have been the selling agents for the Stevens & Thompson Paper Company for the past sixteen years, and the same personnel of the Frank L. Scott Company will continue with the Stevens & Thompson Paper Company, at the same address.

The Frank L. Scott Company will continue to operate as an independent selling organization and will have entire sale of the Stevens & Thompson Company's products. These include their board, dishes, tissue lines and specialties. The Frank L. Scott Company will also continue as sales agents for the Old Towne Company's pie plates and molded products.

The New York Office will be in charge of Emil E. Kolk, as heretofore, and A. E. Dubey will still be in charge of their board sales. No change in the general policies of either company is anticipated, and customers will continue to receive the same service as in the past.

Mr. Thomson To Head Rehabilitation

DAYTON, Ohio, October 27, 1932.—Alexander Thomson, Sr., president of the Champion Coated Paper Company, Hamilton, has assumed leadership in the drive to create jobs through industrial rehabilitation in the Hamilton area, having been appointed to the committee on industrial rehabilitation for the Cincinnati area.

The appointment was made by Fred A. Geier, president of the Cincinnati Milling Machine Company and chairman of the Cincinnati district's committee on industrial rehabilitation.

The Cincinnati committee is one of the nine organized throughout the Fourth Federal Reserve District to urge industrial concerns to make capital expenditures for replacements of obsolete equipment and other needed plant improvements.

The committee's territory includes Hamilton, Adams, Clermont, Highland and Brown counties; and all of Butler county, in which the city of Hamilton is located, except Middletown, which is embraced in the Dayton district. Part of Eastern Kentucky also comes within the Cincinnati area. As a member of the committee, Mr. Thomson is assisting on contacting industrialists in the Hamilton area. It is the plan of the committee to personally visit every industrial concern in its area to point out the desirability of acting on rehabilitation at this time.

In a statement which Chairman Thomson issued, he said:—"The central committee on industrial rehabilitation was organized in Washington at the recent conference of banking and industrial committees of the 12 Federal reserve districts called by President Hoover and attended by ranking officials of the United States Government.

"The fact was made plain in conference discussion that one solution to the problems of employment and business recovery lies in the direction of industrial modernization.

"Accordingly this committee was authorized to devise and put into action a national program to accelerate replacement of obsolete machinery, equipment and plant facilities throughout the country."

Urge Workers To Continue Union Bag Strike

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., November 1, 1932—A meeting of the former union employees of the Union Bag and Paper Corporation was held here last week at which prominent labor leaders urged them to continue the strike which originated last spring. Among those delivering addresses were A. R. Huggins, secretary of the International Brotherhood of Papermakers, E. L. McGinn, organizer for the International Order of Firemen, and Robert Fechner, vice-president of the International Association of Machinists. The strikers were commended for their loyalty during the progress of the strike and all expressed the belief that their cause was a worthy one.

About 275 hands went on strike last May following a decision of company officials to inaugurate the open shop and following failure to reach an agreement in several weeks it was decided to permanently close the Fenimore division. Other units, including the bag factory, where the employees are unorganized have not been affected by the shutdown. It is reported that not a single papermaker has returned to work and that only three members of the Pulp, Sulphite & Paper Mill Workers' Union had taken their old jobs together with a few machinists and firemen. It is understood that several of the union members have secured work elsewhere and officials of the organization claim they have no intention of ending the strike.

"DO ONE THING

AND DO IT WELL"

We esteem the architect because he knows his business thoroughly. He studies one subject . . . does one thing, and so he does it well.

This singleness of purpose has its place even in the manufacture of Liquid Chlorine. Making this product is our business . . . the only one we are in. And we feel that in EBG Liquid Chlorine there is a resulting *dependability*—the same trustworthiness you find in an enthusiastic architect's plans!

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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Sizing Characteristics of Wax Sizes

O. F. Neitzke[1]

Summary

The use of rosin-wax emulsions in beater sizing is rapidly penetrating most branches of the paper industry. The experiments described herein were carried out to determine the fundamental sizing characteristics of rosin-wax sizes as compared with rosin size.

Since it would be practically impossible to correlate all of the factors which influence sizing, such as fillers, type of pulp, time of beating, and particularly water conditions which are different for every paper mill, the experiments were confined to bleached sulphite stock, with no fillers, using the city water of Cambridge, Mass.

Results obtained in other laboratory experiments and in mill scale trial runs have shown that the general sizing characteristics of rosin-wax sizes as compared to those of rosin size remain essentially the same with diversified types of furnish, varying beating operations and different water conditions. For example, in nearly all cases it was demonstrated that 65 pounds of rosin-wax size containing 80 per cent rosin and 20 per cent wax (dry basis) had a sizing value equal to 100 pounds of rosin size.

Experimental Method

Several pounds of bleached sulphite stock were beaten in an experimental beater and stored in a large crock. Enough water was added so that a 100 cc. beaker, level full, contained 2½ grams of bone dry pulp (plus or minus 0.05 grams). In making sheets, 100 cc. of the beaten pulp was agitated in a cup mixer with an eccentric paddle rotating at 60 r.p.m. The size was added in the form of a 1 per cent solution, by means of a graduated pipette. Two minutes later, a 2 per cent alum solution was added in the same manner. Pilot runs were made to determine the amount of alum necessary in each case to bring the pH down to 4.2—4.3. Rosin-wax sizes invariably required less alum than straight rosin size; i.e. alum consumption was roughly proportional to the rosin soap present. The percentages of size and alum used were calculated on the dry weight of the pulp in the furnish. Five minutes after the addition of alum, the stock was diluted to 500 cc. total volume with tap water. The diluted stock had a pH of 4.8 to 5.2. The sheet was formed on a Valley mould. After forming, the sheet was pressed between felts in a Valley press, for one minute at 80 pounds per square inch. The sheet was then dried at the desired temperature by being suspended in a drying oven. For any given temperature, the same drying time was allowed for all sheets, but the time was decreased with increasing temperature; from 2 hours at 100 deg. F. or less, to 15 minutes at 200 deg. F. or more.

The sheets having an average basis weight of 50 pounds (24 x 36 — 500) were allowed to age for 24 hours and were then tested by the ink flotation method, using Waterman's ink at 70 deg. F. No humidity control was available, but all of the tests described were made during a period of relatively low humidity. Four sheets were made for each test and two one inch squares cut from each sheet, were floated wire side up and wire side down. Whenever rosin-wax sized sheets were to be compared with rosin sized sheets, the corresponding sheets were made consecutively and tested simultaneously. The average flotation time for the 8 test pieces was taken in each case. The data was plotted and the best average curves drawn through the points.

The procedure as described was adhered to as closely as possible for all sheets made; however a number of pilot runs indicated that the elapsed time between addition of size and alum or the elapsed time between addition of alum and formation of the sheet, did not affect the sizing value. It was also found that using more alum than necessary to bring the pH to 4.2 gave sizing only very slightly greater than normal, and that if only enough was used to bring the pH to 5.0, sizing was only slightly less than normal. Approximately 50 per cent more alum than rosin soap was used in all sheets; i.e. a sheet containing 1 per cent of rosin soap would require 1.5 per cent of alum. The procedure as outlined above, made it possible to have the sizing the only varying factor, since enough pulp was beaten to make all of the sheets and the same alum solution was used in all sheets.

For the series of tests in which the drying temperature was varied, enough 1 per cent size solution was made up for the whole series, so that in this case the drying temperature was the only variable. The oven drying method was used because the temperature could be more closely controlled than that of the Valley plate drier. At drying temperatures between 200 and 250 deg. F. it was found that the degree of sizing obtained by oven drying was higher in the case of low sized samples (less than 1 per cent size), but lower with the hard sized samples (over 1.5 per cent size) than that of corresponding samples dried on the Valley plate drier.

Sizes Used

ROSIN SIZE:

The rosin size used was made by the Bennett size mak-

[1] Member TAPPI, research director, Bennett Inc., Cambridge, Mass.

ing process, from G gum rosin and caustic soda. It had a 60 per cent solids content with approximately 25 per cent free rosin. The same size tested in mill practice proved as efficient when added to the beater in thick condition, as cooked rosin size of 30 per cent free rosin, which had been emulsified with a large amount of water and added in dilute condition to the beater; it has also been found to be more efficient than cooked sizes of less than 30 per cent free rosin when the latter were added in thick or dilute condition to the beater. The Bennett size making process consists of simultaneously saponifying and dispersing the rosin by means of the Bennett dispersion machine; melted rosin and the caustic soda solution in automatically controlled proportions are fed continuously into the machine and rosin size is discharged therefrom at the desired concentration and free rosin content.

ROSIN-WAX SIZE:

The rosin-wax sizes used were also made by the Bennett size making process from G gum rosin and an amorphous hydrocarbon wax of approximately 150 deg. F. melting point; the same materials are used in commercial Bennett rosin-wax sizes. The "amorphous wax," although slightly inferior to paraffin wax of 130 degrees melting point for sizing value has the advantage in commercial use of not being affected by hot beaters. The manufacturing process is the same as the one described above for rosin size, the wax and rosin being melted together and fed into the dispersion machine with the right proportion of caustic soda. For most of the tests, commercial No. 19 Bennett size with a 40 per cent solids content was used. The melt is made up of 19 per cent wax and 81 per cent rosin. Approximately 20 per cent of the rosin present in the size is uncombined.

For the series of tests which show the effect of varying the ratio of rosin to wax in the size (Fig. 5), sizes were made up using a laboratory model of the Bennett dispersion machine. This machine gives results practically identical with the large scale machine, and allows the processing of as little as one or two pounds of material. All sizes were made at 40 per cent solids content. Fourteen different sizes were made with increasing proportions of wax, i.e. 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 100 per cent wax. The 100 per cent wax size was the commercial No. 100 Bennett size. This contains a small amount of stabilizing soap. In all cases, the size contained enough alkali so that the finished material was barely alkaline to phenolphthalein, which is the normal condition for commercial Bennett rosin-wax sizes.

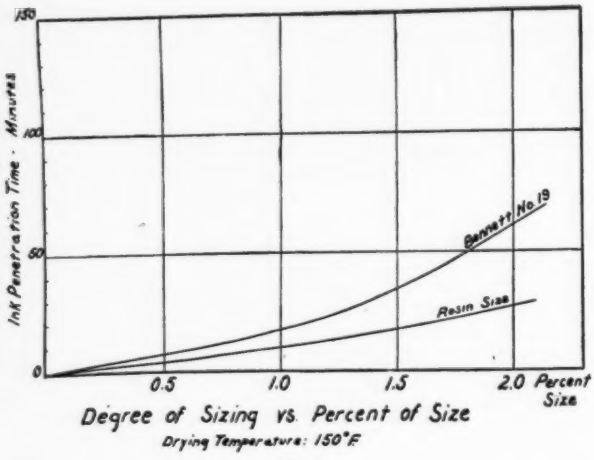

FIG. 2

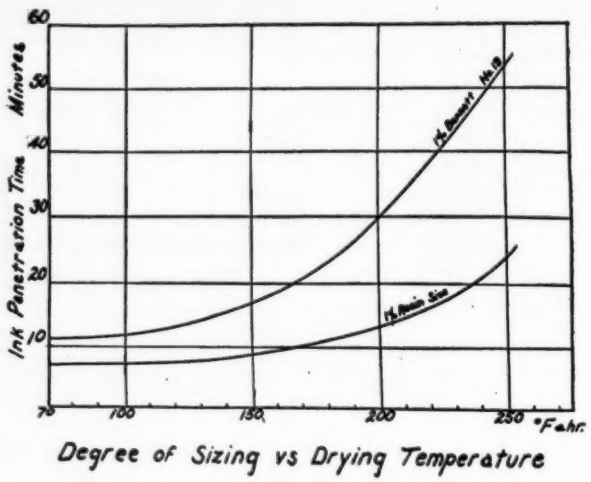

FIG. 1

Results

The results of the tests are shown in the accompanying curves.

Fig. 1 shows the effect of the drying temperature on sizing when 1 per cent of size is used in the furnish. The rosin-wax size shows considerably higher sizing at all temperatures.

Figs. 2, 3, and 4, show the effect of increasing percentages of size at a constant drying temperature. Fig. 3 (drying temperature 200 degrees) corresponds to the average drying temperature on paper machines.

Fig. 5 shows the effect of varying the rosin wax ratio in the size, using 1.5 per cent size in each case and drying at 200 degrees. It will be noted that this curve shows about 20 minutes flotation test for the 100 per cent wax size. The figure actually obtained for the 100 per cent wax size was less than 5 minutes. It was found however that the addition of a very slight amount of rosin soap in the approximate proportion of 1 part rosin to 99 parts wax brought the sizing up to 21 minutes. For this reason the curve was drawn as shown, being representative for all of the ratios up to 99 per cent wax, but too high at the 100 per cent wax line. The crosses marked Bennett No. 19 and Bennett No. 38 show the sizing value for the two commercial Bennett rosin-wax sizes most widely used. It will be noted that the optimum rosin-wax ratio for these conditions (1.5 per cent size, pH 4.2 to 4.3, 200 deg. F.

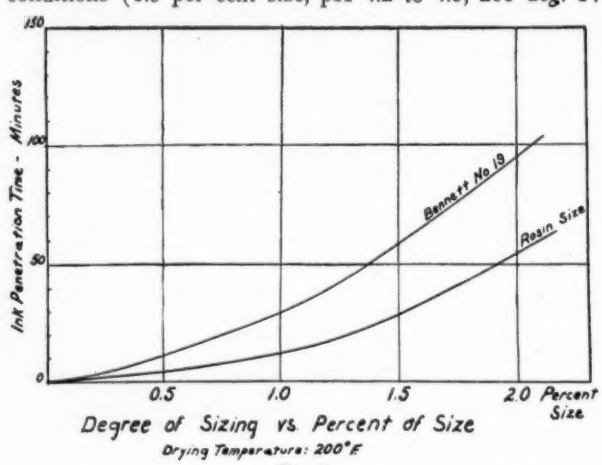

FIG. 3

drying temp.) is about 28 per cent wax and 82 per cent rosin, although the sizing value at that point is not much greater than that of either Bennett No. 19 or Bennett No. 38, in which the proportions of wax to rosin are 19 to 81 and 38 to 62 respectively.

Discussion of Results

From a close study of the curves in Fig. 1, we find that:

1. Within the drying temperatures of 70 and 250 deg. F. the sizing value of the rosin-wax size used (Bennett 19) is greater than that of rosin size at any one temperature.

2. The increase in sizing value due to increased drying temperature is more pronounced and more rapid for the rosin-wax size than for the rosin size.

3. To obtain a given ink resistance it is not necessary to dry the rosin-wax sized paper at as high a temperature as the rosin sized one. For instance, a 20-minute ink penetration test is obtained with the rosin-wax size at approximately 170 deg. F., while it takes nearly 240 deg. F. to get the same size test with rosin size.

Figs. 2, 3 and 4 are most interesting to papermakers as they show the relative sizing value of rosin wax and rosin sizes within the range of drying temperatures prevalent on paper machines. From these curves, it can be seen that, for a given drying temperature, only two-thirds as much rosin wax size are required to give the same sizing value as a given amount of rosin size.

Fig. 5 shows that, for the set of conditions under which the experiments were carried out, the sizing value of rosin-wax sizes increases rapidly until the wax content reaches 25 per cent and then decreases with the increasing wax content of the size. Since wax is more waterproof and more readily fluxed than rosin it would appear that wax is not as readily retained as precipitated rosin. Yet the retention of sizes with high wax content has proved to be the same, within experimental errors, as that of rosin size. Thus the sizes with high wax content may act differently—i.e.—the wax being more easily fluxed and being less viscous than rosin at a given temperature may possibly penetrate into the capillaries of the fibers instead of forming a surface coating like rosin; the presence of rosin in sufficient quantities may prevent that penetration. The case may also be likened to the results obtained by B. Weiger in his experiments with 100 per cent free rosin emulsions during which he observed that the addition of a small amount of rosin soap was necessary to get any sizing results with his 100 per cent free rosin size. In mill practice, we have found that the pH value of the stock had a considerable bearing on the sizing value of sizes with

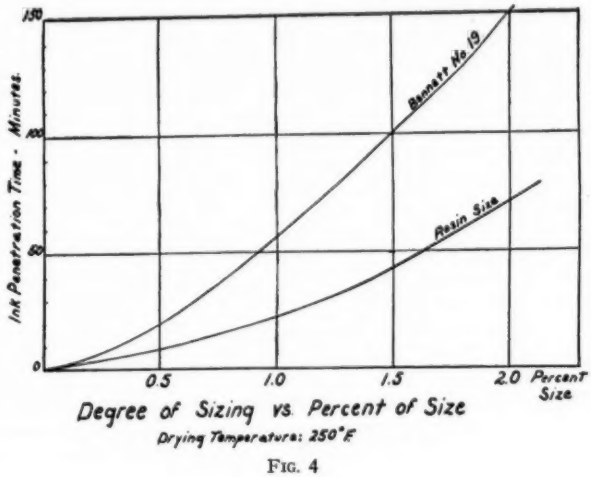

FIG. 4

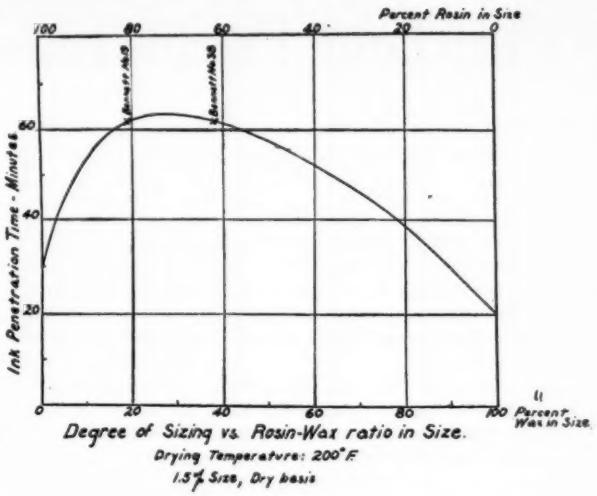
Percent Rosin in Size
Ink Penetration Time - Minutes
Bennett No 19
Bennett No 38
Percent Wax in Size
Degree of Sizing vs. Rosin-Wax ratio in Size.
Drying Temperature: 200°F
1.5% Size, Dry basis

FIG. 5

high wax content. For instance with a 100 per cent wax emulsion, we found that the optimum pH value was between 6.4 and 6.6. Moreover it has been observed that a certain percentage of an all wax emulsion (usually over 1½ per cent) had to be used before any sizing value could be obtained; then the sizing value increased fairly rapidly with the increasing percentage of size used. Nevertheless the fact that the addition of a very small amount of rosin size to a 100 per cent wax size will give a four fold sizing value as explained previously, indicates that the rosin precipitate promotes the sizing efficiency of the wax under normal operating conditions. In any case Fig. 5 shows that as far as sizing value is concerned, no benefit can be derived from the use of a size containing more than 25 per cent of wax for conditions approximating those under which the present series of experiments were carried. However where the other desirable properties of wax are wanted, such as chemical inertness, pliability, softness, improved finish and printing quality, etc. sizes with as high as 50 per cent of wax can be used to advantage. The presence of even small quantities of wax (¼ to ½ per cent) in a sheet of paper will show marked improvements in the latter properties.

In examining the various curves it may come to the mind of the paper maker and technical man that the sizing in all cases appears to be higher than sizing which would be obtained in actual practice with the corresponding amount of size. Those who had experience in making hand sheets have also doubtless found that higher sizing can be obtained in hand sheets than on the machine. We have found in actual practice, however, that the ratio of sizing efficiency of No. 19 Bennett and rosin sizes is approximately the same for mill made paper or board as for hand sheets. The normal practice in paper and board mills is to use one pound of rosin-wax size at 40 per cent concentration in place of each pound of rosin size at 60 per cent concentration to obtain equivalent sizing. In several instances one pound of the 40 per cent Bennett No. 19 size was used against one pound of 70 per cent rosin size with as good sizing results. This ratio is approximately the same as shown by the hand sheets in Figs. 2, 3 and 4.

Wisconsin Paper Mills Busier

APPLETON, Wis., October 31, 1932.—There is a decided tone of improvement in the paper industry of Wisconsin. Tonnage of a number of mills has shown a healthy increase, much more than the average for seasonal upturn.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

The National Research Council, 21st and B Street, Washington, D. C., through Dr. Clarence J. West, extends the courtesy of its photostat service to members of the Technical Association of the Pulp and Paper Industry. Owing to a limitation of personnel and time, this service cannot be extended to non-members.

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Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Sulphite Process

The Cooking of Wood Species Rich in Rosin According to the Bisulphite Process. Carl Bergström. Papier-Fabr. 30, No. 14: 241-246; No. 15: 255-257 (April 3, 10, 1932).—A comprehensive review of the manufacture of pulp suitable for the manufacture of paper, artificial silk and gun cotton, as well as the recovery of the by-products in the pulp manufacture according to the soda, sulphate and sulphite processes.—J. F. O.

Investigation of Sulphite Cooking Acid. Wilhelm Steuer. Papier-Fabr. 30, No. 15: 253-254 (April 10, 1932).—After discussing the various methods used in analyzing the cooking acid, the author gives two methods which are recommended as better.—J. F. O.

Physicochemical Properties of Powdery Pyrite. K. Khodakvo. Bum. Prom. 11, no 3:23-25 (1932); C. A. 26: 3918.—Dust-like pyrites obtained from eroded varieties and flotation works and used for the preparation of pulp cooking acid were investigated.—C. J. W.

Pulping Highly Resinous Wood. Roger W. Richardson and Clarence S. Sherman assignors to E. I. du Pont de Nemours & Co. U. S. pat. 1,851,522 (March 29, 1932).—Highly resinous wood is cooked with a liquor containing ammonium bisulphite, calcium bisulphite and sulphur dioxide.—A. P.-C.

Sulphite Pulping Process. Raymond S. Hatch assignor to Ligno-Cellulose Corp. U. S. pat. 1,852,011 (April 5, 1932).—Wood chips are digested in a solution of a bisulphite of an alkali or alkaline-earth metal containing free sulphur dioxide, the solution is heated, vapors carrying sulphur dioxide are relieved and the vapors are condensed to liquid by indirect heat interchange with a cooling medium, and the liquid is returned directly to the material undergoing treatment (this liquid including the condenser sulphur dioxide substantially uncombined except with associated water of condensation).—A. P.-C.

Pulping Acid-Containing Deciduous Woods. Charles S. Hamm assignor to Mead Paperboard Corp. U. S. pat. 1,852,158 (April 5,1932).—Woods such as chestnut chips are leached (suitably with water) to extract a substantial proportion of the soluble contents while leaving a proportion of the more difficult soluble acid content of the wood to maintain the purity of the extract. The leached wood is cooked in a liquor containing a normal sulphite such as sodium sulphite and an alkaline material such as sodium carbonate with the sulphite in such quantity as to give a controlled cooking action to effect softening of the wood without pulping and the alkaline material being adjusted to neutralize the acid remaining in the leached wood and that generated in the cooking, without deleterious effect on the cooking effect of the sulphite or upon the subsequently disintegrated pulp.—A. P.-C.

Sulphur Dioxide Gas Producing Equipment. S. F. Spangler. Paper Trade J. 94, No. 23: 51-52 (June 9, 1932).—A description of the spray sulphur burner, operating on dried air, designed by the Chemical Construction Co., with a discussion of its advantages and initial cost.—A. P.-C.

Sulphite Cooking: Process Improvements and Controls. W. N. Kelly. Pacific Pulp Paper Ind. 6, No. 6; 21-23 (May, 1932).—A brief outline of recent developments and improvements in the control of sulphite cooking and sulphite acid making, and of the merits and performance in sulphite mills of the recently developed austenitic chrome-nickel steels.—A. P.-C.

Cooking Sulphite Pulp. Patentaktiebolaget Gröndal-Ramén. Brit. pat. 367,235 (April 14, 1931).—Wood chips are saturated with aqueous alkali bisulphite containing little or no free sulphur dioxide, and the excess liquor is withdrawn and replaced by another solution prepared from waste or washing liquor and containing the whole of the free sulphur dioxide required for cooking.—A. P.-C.

Digesting Fibrous Materials Such as Wood Chips. Thomas L. Dunbar. U. S. pat. 1,859,384 (May 24, 1932).—Acid liquor is introduced into a digester while discharging air to the atmosphere from the digester through an air vent until acid gas appears, then the vent is covered and gas is recovered. Various details of apparatus are described suitable for treating wood with acid sulphite liquor.—A. P.-C.

Automatic Pressure Control on Sulphite Digesters. Avery H. Stanton. Paper Ind. 14: 302 (July, 1932).—A brief discussion of the merits of the newer type of air-operated, fully compensated pressure controllers for sulphite digesters.—A. P.-C.

Process Improvements and Controls in Sulphite Cooking Practice. J. P. V. Fagan. Paper Trade J. 95, No. 3: 27 (July 21, 1932).—A description of the system used at the mill of the Puget Sound Pulp and Timber Co., Everett, Wash., to maintain constant acid conditions.—A. P.-C.

Preparing Resinous Woods for Bisulphite Cooking. Gotthard Rosen assignor to La Cellulose Rosen, Soc. Anon. U. S. pat. 1,857,695 (May 10, 1932).—Resinous wood chips, before being digested by the bisulphite process, are subjected to at least one treatment with chloride of lime, followed by washing with water.—A. P.-C.

Apparatus for the Production of Pulp. César Bouvier, Georges Fouché and Edmond Séguin. Fr. pat. 719,400 (July 1, 1931).—An apparatus for making pure cellulose from vegetable materials comprises two autoclaves working alternately, the water being introduced into an autoclave under vacuum, and the sulphur dioxide being introduced under energetic cooling.—A. P.-C.

Pulping Process. George A. Richter assignor to The Brown Co. Can. pat. 322,837 (May 31, 1932).—Raw cellulosic material is cooked in a sulphite liquor having a combined sulphur dioxide content of not less than 4 per cent and a free sulphur dioxide content of not more than 2 per cent; *e.g.,* chipped wood (spruce) is digested with a cooking liquor containing 5 per cent combined (in the form of sodium sulphite) and 1 per cent free sulphur dioxide at 300° to 335°F. for 6 to 8 hours. The digested pulp is separated from the spent liquor and washed, screened and subjected to further desired treatment. In unbleached condition the pulp has a Mullen strength of about 170 and a tear resistance of about 200.—A. P.-C.

Process for Producing Pulp. Daniel Westad. Fr. pat. 600,219 (April 23, 1932).—Waste wood, etc., used for making pulp is impregnated with the digestion liquor under high pressure and at a relatively low temperature before submitting it to digestion at a high temperature.—A. P.-C.

Maintaining Uniform Cooking Acid Conditions. W. N. Kelly. Paper Trade J. 95, No. 3: 28-29 (July 21, 1932).—A brief review of recent developments in acid making and sulphite cooking.—A. P.-C.

Development of a Rational Cooking System for Sulphite Digesters. W. H. Swanson, Lloyd Lan and B. F. Smith. Paper Trade J. 95, No. 2: 33-38 (July 14, 1932).—The system finally adopted consisted in using a mechanical chip distributor for charging the digester; withdrawing liquor from the top of the digester, circulating it through an external high-pressure forced-circulation heater and returning it near the bottom of the digester; and using independent air-operated pressure and temperature controllers to cook according to a predetermined schedule with constant cooking time of 9 hours.—A. P.-C.

Indirect Heating and Forced Circulation in Sulphite Pulp. C. J. Christiansen. Paper Trade J. 95, No. 1; 48 (July 7, 1932).—A brief outline of the chief characteristics of the indirect-heating, forced-circulation sulphite cooking system being installed at the mill of the Rhinelander Paper Co.—A. P.-C.

Pulping Cellulose or Cellulosic Material. H. Dreyfus. Brit. pats. 371,000, (A) 371,001 (B), 371,037 (C) and 371,038 (D) [Nov. 8 and 11, 1930].—(A) Alkaline—or (B) acid-digestion processes are conducted at moderate temperature, *e.g.,* 100° to 150°C., under high pressure, *e.g.,* 120 to 150 atmospheres, obtained by introducing into the digester 10 to 35 per cent (on the weight of wood) of a volatile organic liquid such as ether or light petroleum. Nitrogen or other inert gas may be pumped into the digester to increase the pressure. (C) Volatile aliphatic alcohols, *e.g.,* methanol or ethanol, are particularly suitable as pressure-producing agents for both alkaline and (D) acid digestions. By thus operating at relatively low temperature, attack on the cellulose is avoided and higher yields are obtained.—A. P.-C.

Formation of Molds on Sulphite Pulp. Anon. Papier 35: 403-416 (April, 1932).—The decomposition of sterile bleached and unbleached sulphites by 15 molds was followed microscopically under a magnification of 650, and later by the rate of evolution of carbon dioxide. All the molds tried attacked both pulps, but in different ways. In certain cases, and at certain stages of decomposition, the fibers appeared as if swelled in peptizing media; the end result in all cases was a structureless mass. Lignin and other impurities in unbleached pulps seemed to serve as nutrients. Humin substances were formed, especially from the more lignified pulps. It was found possible to control conditions in the laboratory so that the lignin decomposition was greater than the cellulose decomposition, but the results hold no promise of a successful process for isolating pure and strong fibers by biological decomposition of lignocellulose. When moist pulp in storage is attacked by molds, though the weight loss is small, the strength loss may be large because of the nature of the attack on the fibers.—A. P.-C.

Pulping Process. George A. Richter assignor to Brown Co. U. S. pat. 1,849,334 (March 15, 1932).—Chipped wood is treated until it is completely permeated with a solution of at least about 10 per cent concentration of a highly soluble compound such as sodium sulphite capable of being converted by sulphur dioxide into bisulphite, and the permeated wood is treated with only water and sulphur dioxide to produce a bisulphite cooking liquor of at least 1 per cent strength in base; fiber liberation is effected by cooking under pressure.—A. P.-C.

Sulphite Pulping Process. Gustaf Haglund assignor to Patentaktiebolaget Gröndal-Ramén. U. S. pat. 1,848,780 (March 8, 1932).—The primary cellulose material is first boiled with a solution which contains alkali sulphites, bisulphites or a mixture thereof, but in the absence of all entirely free sulphur dioxide, and the boiling is afterward completed with a solution which contains the necessary amount of entirely free sulphur dioxide.—A. P.-C.

Wood Pulping Process. George A. Richter assignor to Brown Co. U. S. pats. 1,848,661 and 1,848,662 (March 8, 1932).—*No. 1,848,661*—Chipped wood is cooked short of pulping in a non-acid sulphite solution and then cooked to effect complete fiber liberation in a sulphurous acid solution. *No. 1,848,662* relates to a process in which raw cellulosic material such as wood chips is cooked with a mercerizing liquor and then cooked in sulphurous acid solution.—A. P.-C.

Pulping Process. George A. Richter assignor to The Brown Co. Can pat. 319,802 (Feb. 16, 1932).—Wood chips are cooked 2 hrs. in sulphurous acid solution at 230° to 260°F. and 60 to 75 lbs. pressure. The hot sulphurous acid is converted into a bisulphite liquor by the addition of a concentrated solution of caustic soda, sodium sulphide or sodium sulphate until a combined sulphur dioxide content is obtained. The temperature of cooking may be raised to 285° to 300°F. and the treatment continued for 2 hours. The bisulphite liquor is then withdrawn and the wood chips are washed and digested in an alkaline liquor which need contain only about 1 lb. of active alkali per cu ft. calculated as Na_2O to complete fiber liberation.—A. P.-C.

Uncondensable gases from cellulose cooking. Hilding Bergström and Karl Cederquist. Iva 1932, no. 2: 45-47; C. A. 26: 3663.—During the entire blowing period of a sulphite cook from a pressure of 5 to 1.5 atmospheres, gas was by-passed from between digester and cooler to a small condenser held at about 10 deg. C., the condensate collected, the uncondensable gases passed through potassium hydroxide solution and collected for analysis. The condensate amounted to 0.56 liter or 5,000 liters for the entire cook, and the uncondensable gases to 9 liters. The gases after potassium hydroxide absorption contained 2.1 per cent carbon dioxide and sulphur dioxide and 19.5 per cent of oxygen. No carbon monoxide, hydrogen and methane could be detected. The potassium hydroxide solution absorbed 5.82 liters of carbon dioxide and 68.7 liters sulphur dioxide. Cymene formation is considered to be due to dehydration of terpenes, so that hydrogen should appear in the uncondensable gases. The tests showed that this is not the case. Uncondensable gases from a sulphate plant are combustible, as are the gases from the vacuum pump of a black liquor evaporator.—C. J. W.

Sulphite Waste Liquor

Reducing Power of Waste Liquor. H. Lauber. Pulp Paper Can. 33: 128-131 (May, 1932).—Reducing-sugar content is a measure of the value of waste liquor for alcoholic fermentation. From a study of the factors which might influence this value, the author concludes that: (1) addition of selenium to the cooking liquor increases the reducing power considerably; (2) increasing the ratio of combined to total SO_2 in the liquor reduces somewhat the reducing power; (3) arsenic, flue dust (mostly ferric oxide), lead sulphate, sulphur and calcium sulphate had no effect. (1) is due to increased acidity (catalytic decomposition of sulphur dioxide to trioxide) and (2) to decreased acidity of the liquor. It is concluded that purification of sulphur burner gases has no important bearing on the sugar content of the waste liquor.—A. P.-C.

Concentration of Sulphite Waste Liquor by Submerged Combustion. Kenneth A. Kobe. Paper Trade J. 95, No. 3: 33-34 (July 21, 1932).—The merits of submerged combustion are pointed out, and it is suggested that it would practically eliminate all the troubles usually encountered in evaporation of sulphite waste liquor by the ordinary processes.—A. P.-C.

Manufacture of Varnishes, Solid Plastics, Etc., from Sulphite Waste Liquor. Robeson Process Co., assignees of F. J. Wallace. Brit. pat. 370,752 (June 26, 1931).—Dry or liquid products containing the characteristic lignosulphonates of sulphite waste liquor (preferably freed from lime) are heated under pressure with a phenol, such as carbolic acid, and an aldehyde, such as foraldehyde or purfuraldehyde, in the presence, if desired, of an acid catalyst such as ammonium chloride, giving a thermoplastic water-insoluble, alcohol-soluble condensation product.—A. P.-C.

Use of Resinic Acids and Oils from the Extraction of Cellulose in the Flotation of Ores. Erz-u. Kohle-Flotation G.m.b.H. Fr. pat. 721,306 (Aug. 13, 1931).—Resinic acids and oils from the sulphite or sulphate pulping processes are used as covering substances in the flotation of ores.—A. P.-C.

Alkaline Cooking Liquors from Sulphite Waste Liquor.) Willi Schacht. Fr. pat. 722,838 (Sept. 11, 1931).—Sulphite waste liquors are neutralized, alkaline-earth oxides are added, and they are then used for making paper or cardboard from straw or other vegetable products. The liquors may also be used for the production of alcohol and the residual liquors from the vinasses used for making paper, etc.—A. P.-C.

Lignin Derivatives from Sulphite Waste Liquor. Guy C. Howard. U. S. pat. 1,848,292 (March 8, 1932).—Sulphite waste liquor is treated with solid-phase caustic lime to produce precipitated organic material containing approximately 32 parts of organically combined sulphur to 500 parts of organic matter and substantially free from carbohydrate substances; the precipitate is separated and steam cooked under pressure with sufficient line alkalinity to cause a decrease in the proportion of organically combined sulphur through formation of calcium sulphite and to yield solid organic material of diminished solubility in aqueous acid solutions suitable for use as a pigment, in rubber or paper products, etc.—A.P.-C.

Sodium Lignosulphonate. Webster E. Byron Baker. U. S. pat. 1,847,709 (March 1, 1932).—In preparing a concentrated sulphite cellulose extract containing practically all of its salts in the form of sodium compounds, sulphite waste liquor is neutralized with an alkaline-earth hydroxide and concentrated, freed from substantially all sulphates and sulphites (suitably by milk of lime) and then treated with a concentrated solution of sodium carbonate chemically equivalent to the quantity of alkaline-earth metal contained in the extract (thereby precipitating practically all the alkaline-earth metals as carbonates) and the solution containing sodium lignosulphonate is separated and acidified with an organic acid such as acetic acid which does not substantially ionize and which has a relatively low dissociation constant in order to prepare a tanning composition.—A. P.-C.

Treatment of Sulphite Waste Liquor. Guy C. Howard U. S. pat. 1,856,558 (May 3, 1932).—Caustic lime is added to precipitate crystals of calcium sulphite, and the crystals are subjected to treatment conducive to crystal growth and are recovered.—A. P.-C.

Hydrogenation of Sulphite Liquor. Hilding Bergström and Karl Cederquist. Iva 1932, no. 3:64-65; C. A. 26:3666.—In a 2 liter rotating autoclave 200 grams of dried sulphite liquor and 50 grams of dry gas purification mass were heated to a final temperature of 460 deg. C. with hydrogen under pressure. After hydrogenation the greater part of the sulphur was present as sulphide and only 3 per cent as sulphate.—C. J. W.

Miscellaneous

Micarta in the Paper Industry. Samuel A. Staege. Paper Trade J. 94, No. 23:55-56 (June 9, 1932).—A brief discussion of its possible applications in the paper industry.—A. P.-C.

Materials of Construction Service Records. James D. Miller. Paper Trade J. 94, No. 19:39-40 (May 12, 1932).—Data are presented, obtained in the course of a survey of representative U. S. mills, on the service of various materials used in the acid sulphite, sulphate and neutral sulphite processes.—A. P.-C.

Corrosion in a Pacific Coast Groundwood Mill System. I. H. Andrews. Pacific Pulp Paper Ind. 6, No. 6:16-17 (May 1932).—Closed-in white-water systems apparently build up an acidity, which in turn introduces a corrosion problem. Corrosion may be combated by partial neutralization, but when the pH is brought above 5.5 with soda ash there is danger of discoloration of the pulp. Use of wood stave piping and copper fittings has practically eliminated corrosion and iron pick-up in one 100-ton groundwood mill.—A. P.-C.

Color Printing in the Newspaper. John W. Park. Pulp Paper Can. 33:231-233 (July, 1932).—A brief outline of the various methods used in color printing of newspapers.—A. P.-C.

Present-Day Manufacture of Paper in Europe. Anon. Papeterie 54:421-431 (April 25, 1932).—A brief outline of recent developments and present-day practice in paper making in European mills.—A. P.-C.

Some Aspects of Standardization Activities in the American Society for Testing Materials. C. L. Warwick. Paper Trade J. 94, No. 25: 31-34 (June 23, 1932); Tech. Asso. Papers Series XV:283-286 (June, 1932).—A discussion of the value of standards for materials together with a presentation of the committee organization of the American Society for Testing Materials.—A. P.-C.

Baling of Sulphite Pulp for Export. C. C. Ryan. Pulp Paper Can. 33:134-135 (May, 1932).—Trouble due to snapping of baling wires on bales of very heavily pressed pulp was overcome by the use of platens, both top and bottom, having a crown of approximately 0.11 in. per square foot of sheet area.—A. P.-C.

Analysis of Lime*

Tentative Standard Method of the Technical Association of the Pulp and Paper Industry

The pulp and paper industry uses lime in two forms; namely, quicklime (unslaked lime) and hydrated lime (slaked lime).

Quicklime is produced by the calcination of limestone, whereby CO_2 is driven off, leaving a residue consisting chiefly of CaO. In the case of dolomitic limestone, which has a high magnesium content, the residue from the calcination consists chiefly of CaO and MgO. In the purchase of quicklime care should be exercised to see that it contains a minimum quantity of fine air-slaked dust. This dust is practically worthless because it has taken up CO_2 from the air, forming $CaCO_3$. Quicklime should break down almost completely in the slaking tank with a minimum of unslaked particles. This unslaked material may be overburnt limestone, unburned cores, or particles of stone that were embedded in the limestone deposit.

Hydrated lime is made from quicklime by slaking with just sufficient water to cause the lumps of quicklime to form a powder, the heat of reaction being sufficient to dry the product. On the basis of its CaO content a ton of hydrated lime is equivalent to three-quarters of a ton of quicklime.

Specifications

For use in cooking rags, straw, etc., for causticizing, and for water treatment, the available CaO is the item of principal importance. For the sulphite process the amount of certain of the impurities is also important. Specifications which have been adopted by the Am. Soc. for Testing Materials are given in Table 1.

TABLE 1
SPECIFICATIONS FOR LIME FOR USE IN PULP AND PAPER INDUSTRIES

A. For use in cooking rags (A.S.T.M. Standard C45-25)
B. For sulphite pulp manufacture (A.S.T.M. Standard C46-27)
C. For water treatment (A.S.T.M. Standard C53-27)
D. For water treatment (A.S.T.M. Standard C54-27)

	Quicklime			Hydrated Lime	
Percentages	A	B *	C	A	D
Calcium Lime:					
CaO, minimum	..	94.3	..	...	...
MgO, maximum	..	2.6	..	...	...
$SiO_2 + Al_2O_3 + Fe_2O_3$, maximum	..	3.1	..	...	...
Available CaO, minimum	90	...	90	64.3	68.2
Magnesium Lime:					
CaO, minimum	..	56.5	..	...	...
MgO, minimum	..	40.4	..	...	...
$SiO_2 + Al_2O_3 + Fe_2O_3$, maximum	..	3.1	..	...	...

* On non-volatile basis.
All figures are based on weight of sample at point of manufacture.

Sampling

(1) *Quicklime* is generally sold in bulk and shipped in carload lots, but is frequently purchased locally in barrels by small users. In sampling material in bulk the samples shall be selected so that they represent an average of all parts of the pile or car and shall not contain a disproportionate share of the top or bottom layers. The total sample shall comprise at least 10 shovelfuls of equal size taken from different parts of the pile or car and shall weigh not less than 100 pounds for a 30-ton unit, with a proportionate quantity of material for multiples of this unit, provided that at no time shall the total taken weigh less than 50 pounds. It shall be broken, if necessary, to pass a 1-in. ring, thoroughly mixed and quartered, and the samples for testing shall be taken from the material so drawn and prepared. The sampling shall be done within 24 hours of the receipt of the material and shall be conducted as expeditiously as possible to avoid undue exposure to the air.

If the material is shipped in packages, at least 2 per cent shall be sampled, the packages to be taken from various parts of the shipment, and not less than 5 packages shall be sampled. The gross sample shall be placed in a pile, broken, if necessary, to pass a 1-inch ring, thoroughly mixed and quartered down to laboratory size. Samples shall not be taken from broken packages.

(2) *Hydrated Lime* is generally shipped in cloth or paper bags. It shall be sampled with a sampling tube which takes a core not less than ½ inch in diameter. The tube shall be so inserted into the package that it will take a core of material from substantially the entire length of the package. Material thus taken from individual packages shall be thoroughly mixed and quartered, and samples for testing shall be taken from the material so drawn and prepared. Individual packages shall be taken from various parts of the unit being sampled. At least 1.5 per cent of the packages shall be sampled, and in no case shall less than 5 packages be sampled, unless the total shipment is less than this.

Treatment of Sample at Laboratory: The sample as received at the laboratory shall be thoroughly mixed and reduced in quantity by the usual methods of quartering to give a minimum portion of 75 grams. This portion shall be ground, either by a suitable mechanical device, or by hand in an agate mortar, until it all passes a No. 100 sieve. It shall then be thoroughly mixed and placed in an air-tight container.

Analysis

The procedures described in the method for analysis of limestone shall be used for the chemical analysis of lime, except for the determination of available lime which is herein described.

Available Lime:[1] Place 1.4 grams of the carefully prepared and finely ground sample (passing a No. 100 sieve) in a 400-cc. beaker, add 200 cc. of hot water, cover, heat carefully and then boil for 3 minutes. Cool, wash down the cover, add 2 drops of phenolphthalein solution and titrate with 1 N HCl, adding the acid dropwise as rapidly as possible and stirring vigorously to avoid local excess. When the pink color disappears in streaks, retard the rate of addition of acid somewhat, but continue until the pink color disappears entirely and does not reappear for 1 or 2 seconds. Note the burette reading and ignore the return of color.

Repeat the test, substituting for the 400-cc. beaker a 1-liter volumetric flask, carrying a one-hole stopper fitted with a short glass tube drawn to a point. Cool, remove the stopper and add dropwise and with vigorous stirring a quantity of 1 N HCl 5 cc. less than before. Call the number of cc. used *A*. Grind up any small lumps with a long glass rod flattened at one end, dilute to the mark with freshly boiled distilled water, close the flask with a solid stopper, mix thoroughly for 5 minutes and let settle for 30 minutes. Pipette out 200 cc. of the liquid, add phenolphthalein and titrate slowly with 0.5 N HCl until the solution remains colorless on standing 1 minute. Call this additional number of cc. of acid *B*. The percentage of available CaO is then $2A + 5B$.

Note: As this method is empirical it must be followed in exact detail for accurate and concordant results. For very accurate work 0.1 N instead of 1 N acid may be used in the final titration. In this case the percentage of available CaO is $2A + B$.

Reference: A. S. T. M. Standards C 25-29 and C 50-27.

* This method has been approved by the Non-Fibrous Materials Testing Committee of the Technical Association of the Pulp and Paper Industry. Suggestions and criticisms should be sent to R. C. Griffin, Chairman, 30 Charles River Road, Cambridge, Mass.

[1] Modified Scaife Method (A.S.T.M. Standard C 25-29). The available lime thus determined includes those constitutents which enter into the reaction under the specified conditions.

Determination of Water Resistance of Paper*

Tentative Standard Method of the Technical Association of the Pulp and Paper Industry

I. Scope

This method is tentatively limited to paper having not more than a medium degree of water resistance such as imparted by rosin, glue, starch, and wax sizing and not more than .01 inch in thickness. The applicability of the details of the testing procedure to papers having greater water resistance such as waterproofed paper and thicker paper products is being investigated.

II. Apparatus

The following special apparatus is required. (1) A support for the test specimen to permit even wetting of the lower surface of the specimen and protection of the upper surface with a cover glass. A special float that has been devised for the purpose is recommended (See Sec. VII). As an alternate support, a hollow cylinder of metal or glass, such as an oil cup glass, about 1½ inches in diameter and 2 inches long, and having even and smooth edges, is suitable. (2) A shaker by means of which the indicator is distributed through a 70-mesh wire screen (See Sec. VII).

III. Reagents

A. Indicator.—Water-transudation indicator composed of pure cane sugar, such as "Domino" lump sugar; soluble starch, C. P.; and methyl violet dye, Du Pont N. E. Methyl Violet, National Aniline and Chemical Co. 2 B. P. Methyl Violet, or equivalent. Each ingredient shall be ground separately until it all passes through a 100-mesh screen, and shall be completely dried in a desiccator over calcium chloride before making the mixture. When dry, the following proportions are weighed and mixed:

Sugar	45 grams
Soluble Starch	5 grams
Dye	1 gram

The ingredients shall be mixed by screening repeatedly through a 60-mesh wire until the mixture is uniform. The mixture must be kept dry, therefore exposure to the moisture of the atmosphere is to be avoided as far as possible. (See Sec. VII).

B. Water.—Water of fair purity, such as the usual drinking water, is suitable.

IV. Specimen

The test specimens shall be cut from different portions of the test sample in such a way as to be thoroughly representative of it. They shall be free from folds, wrinkles or other blemishes not commonly inherent in the paper. A convenient size is 3 x 3 inches.

V. Procedure

The tests shall be made on paper conditioned according to the official method for conditioning and in the atmospheric conditions therein specified.

A thin uniform sprinkling of the indicator is dusted from the shaker onto the surface of the test specimen by gently tapping the bottom of the inverted shaker and moving it slowly over the surface of the specimen so that the paper remains just visible between the particles of the indicator.

About three quarts of water are put in a vessel of such proportions that it is filled to a depth of about 2 inches. The temperature of the water shall be maintained at 21 deg. C. ± 0.5 degrees. If the float is used the specimen is fastened in it with the uppermost surface covered with the indicator powder. A watch glass is fastened over the specimen and the whole assembly is floated on the water. If a cylinder is used as a support, it is placed in the water with one end resting on the bottom of the vessel and the water lever is adjusted until the other end is barely covered with water. The test specimen is placed over the end of the submerged cylinder and covered with a watch glass, or other suitable concave cover glass. When putting the specimen on the water care must be taken not to wet the upper surface nor to entrap air bubbles underneath. The test specimen shall be examined after the test and if evidence of uneven wetting is found the result shall be discarded.

The test specimen shall be watched continuously for a change in the color of the indicator. With the aid of two stop watches or a double-reading stop watch, the elapsed time in seconds is measured from the contact of the paper with the water until (1) one-quarter of the indicator and (2) three-quarters of the indicator changes in color. The average of the two readings is the water resistance for the specimen. An equal number of tests shall be made on both sides of the paper, and not less than 10 different specimens shall be tested.

VI. Report

The report shall give the minimum, maximum and average water resistance of the paper, calculated from the test data for all of the specimens tested.

VII. Additional Information

This method is based on that of Carson,[1] and modifications developed by the TAPPI Paper Testing Sub-Committee on Water Resistance under the direction of Abrams[2] and Codwise.[3]

The reproducibility of the average test results by experienced operators is within 10 per cent.

The novel feature of the method is the use of a suitable hygroscopic material in the indicator, such as sugar, to trap transuded water. The starch is added to the indicator to render it more stable. Because of the necessity of keeping the indicator dry, storage in a desiccator over calcium chloride except while in actual use is recommended. Mixing the components of the indicator by screening is essential to avoid discoloration, which occurs if they are ground together.

A convenient indicator shaker is prepared from a small glass screw-top bottle by cutting away most of the metal of the flat portion of the top, fitting a 70-mesh wire inside the top, and screwing the top back in place. A float devised by Carson is recommended as an aid to accuracy. Abrams developed a device[4] termed "Penescope", for applying the test in a different way.

Further information is contained in the following articles referred to above.

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* This method has been approved by the Paper Testing Committee of the Technical Association of the Pulp and Paper Industry. Suggestions and criticisms should be sent to B. W. Scribner, Chairman, c/o Bureau of Standards, Washington, D. C.

[1] Carson, F. T., Paper Trade Jr. 80, No. 10, p. 59, (Mar. 5, 1925) also in Technical Asso. Papers, 8, p. 91 (1925); U. S. Bureau of Standards Technologic Paper No. 326 (Sept. 1926).

[2] Abrams, A., Paper Tr. Jr., 78, No. 9, p. 40 (Feb. 28, 1929), also in Technical Asso. Papers, 12, p. 49 (1929).

[3] Codwise, P. W., Paper Tr. Jr. 92, No. 10, p. 55 (Mar. 5, 1931), also in Technical Asso. Papers, 14, p. 175 (1931); Paper Tr. Jr., 94, No. 5, p. 42 (Feb. 4, 1932), also in Technical Asso. Papers, 15, p. 234 (1932).

[4] Abrams, A., Paper Tr. Jr., 84, No. 3, p. 44 (Jan. 20, 1927).

Analysis of Limestone*

Tentative Standard Method of the Technical Association of the Pulp and Paper Industry

In the tower system of making bisulphite cooking acid, limestone in pieces of various sizes is loaded into the towers, water is trickled over the limestone at the top and SO_2 gas is forced in at the bottom. It is possible to use either a high-calcium or a high-magnesium limestone in the tower system. High-calcium limestone, however, is generally used because the magnesium stone is less soluble in the acid and, in addition, the magnesium forms a sludge that requires a long time to go into solution. A high-magnesium stone may reduce the acid making capacity of a tower by one-fourth. On the other hand, it is generally considered that a high-magnesium acid gives the best cooking results, due to the slower decomposition of magnesium bisulphite, and therefore the slower liberation of SO_2 gas during the cooking operation.

Sampling

Material shall be selected so that it will represent an average of all parts of the pile or car and shall not contain a disproportionate share of the top or bottom layers. In view of the usual size of the lumps, it is impractical to take samples with a shovel. It is recommended that samples be taken by breaking small portions with a hammer from approximately 100 lumps situated in various parts of the car or pile. Each piece need consist of but a few ounces. These shall be broken, if necessary, to pass a 1-inch ring and transported to the laboratory.

Treatment of Sample at Laboratory: The sample as received at the laboratory shall be crushed with a jaw crusher, or other suitable means, and reduce in quantity by quartering, as described in the method for sampling coal, to give a minimum portion of 75 grams not coarser than 60-mesh. This portion shall be ground, either by a suitable mechanical device, or by hand in an agate mortar, until it all passes a No. 100 sieve. It shall then be thoroughly mixed and placed in an air-tight container.

Loss On Ignition

Weigh accurately 0.5 gram of the sample in a previously ignited and weighed covered platinum crucible. Ignite in an electric muffle for 15 minutes, cool in a desiccator and weigh. Repeat the ignition to constant weight. If an electric muffle is not available a flame ignition and blast lamp may be used. Report the percentage loss in weight as Loss on Ignition.

Silica and Insoluble Matter

Transfer the ignited residue to a platinum evaporating dish (if platinum is not available, porcelain may be used, but not glass), mix to a slurry with distilled water, add 5 to 10 cc. of conc. HCl and digest with gentle heat until solution is complete. Any lumps may be broken up carefully with the flattened end of a glass rod. Then evaporate to dryness on the steam bath. Heat the residue on a hot plate for 1 hour. If the Mg content is high the temperature should not exceed 120 deg. C., otherwise it may be carried to 200 deg. C. Cool and drench with conc. HCl and let stand for a few minutes; then add an equal volume of water, cover the dish and place on the water bath for 10 minutes. Filter and wash the residue thoroughly with dil. HCl and then wash twice with cold water. Evaporate the filtrate to dryness, extract the residue with HCl as before and filter the solution through a second and smaller paper. Save the filtrate.

Transfer the wet papers containing the residues to a weighed platinum crucible. Char carefully without allowing the paper to take fire and finally ignite to constant weight in an electric muffle. Report the percentage of residue as silica and insoluble matter.

Silica: Ordinarily the SiO_2 is not determined separately but if it is desired, treat the above residue in the crucible with 5 cc. of HF and 1 or 2 drops of H_2SO_4 and evaporate to dryness. Then heat for 2 or 3 minutes in an electric muffle and again weigh. The loss in weight caused by the HF treatment is the SiO_2.

Note: If the SiO_2 is determined, the residue in the crucible should be fused with a little Na_2CO_3, the cooled melt dissolved in dil. HCl and the solution added to the acid filtrate previously obtained. If the SiO_2 is not determined, the residue of silica and insoluble matter may be discarded.

Iron Oxide and Alumina

To the HCl solution from the previous determination add a few drops of bromine water or HNO_3 and boil until all traces of Br or Cl are gone; then add HCl, if necessary, to insure a total volume of 10-15 cc. of conc. acid. Add a few drops of methyl red solution, dilute to 200-250 cc., and heat to boiling. Neutralize carefully with NH_4OH until the color of the liquid changes to a distinct yellow. Boil for 1 or 2 minutes, let settle, filter and wash the precipitate at once two or three times with hot 2 per cent NH_4Cl solution. Save the filtrate.

Dissolve any precipitate from the paper in hot dil. HCl, collect the filtrate in the beaker in which the precipitation was made and wash the paper thoroughly with hot water. Boil and again precipitate with NH_4OH as previously. Filter and wash with 2 per cent NH_4Cl solution. Save the combined filtrates for the determination of CaO. Ignite the precipitate, preferably in a muffle, in a weighed platinum crucible, cool in a desiccator and weigh as Al_2O_3 plus Fe_2O_3. Calculate to percentage.

Note: This precipitate may also contain TiO_2, P_2O_5 and Mn_3O_4, but they are usually present in very small amounts and commonly disregarded.

Iron Oxide: Ordinarily no separation of the oxides need be made. In case the Fe_2O_3 content is desired, however, fuse the combined oxides in a platinum crucible at a very low temperature with 3-4 grams of $KHSO_4$ or better $Na_2S_2O_7$. Take up the melt with 5 grams of conc. H_2SO_4 in sufficient water to effect solution on heating, carefully evaporate the solution and finally heat on the hot plate until copious SO_3 fumes come off. Cool, redissolve in water, filter out the small amount of SiO_2 and wash the paper with water. If the SiO_2 was determined separately, ignite the residue, weigh and correct the weight by treatment with HF and H_2SO_4. Add the weight so corrected to the weight of SiO_2 previously found and deduct from the gross weight of $Fe_2O_3 + Al_2O_3$. If the SiO_2 is not separately determined, disregard the small amount of SiO_2 here found.

Pass the acid filtrate through a Jones reductor and titrate with 0.05 N $KMnO_4$ solution. Calculate the titration to percentage of Fe_2O_3.

1 cc. 0.05 N $KMnO_4$ = 0.0040 gram Fe_2O_3.

Notes: (1) The zinc in the Jones reductor will also reduce TiO_2. If this is to be determined and deducted from the Al_2O_3, then H_2S must be used for reduction, boiling out the H_2S in a stream of CO_2 before titration. Ordinarily the TiO_2 content is negligible.

* This method has been approved by the Non-Fibrous Materials Testing Committee of the Technical Association of the Pulp and Paper Industry. Suggestion and criticisms should be sent to R. C. Griffin, Chairman, 30 Charles River Road, Cambridge, Mass.

(2) If the amount of Fe_2O_3 is too small for an accurate titration on a 0.5 gram sample, the alternative method given below should be used.

ALTERNATIVE METHOD FOR Fe_2O_3: Dissolve 2-5 grams (depending upon the amount of Fe present) of the sample in HCl and evaporate rapidly to dryness. Treat the residue with water and HCl, filter off the SiO_2 and wash several times with hot water. Precipitate the Fe in a boiling solution with NaOH. Let settle, filter and wash free from Cl with hot water. Dissolve in dil. H_2SO_4. Ignite the insoluble matter from the evaporated HCl solution in a platinum crucible. Treat with H_2SO_4 and HF and heat until SO_3 fumes appear. Dissolve the residue with a few drops of H_2SO_4 and combine the solution with the main Fe solution. Reduce this through the Jones reductor and titrate with $KMnO_4$.

ALUMINA: Subtract the Fe_2O_3 from the weight of the Fe_2O_3 + Al_2O_3 and calculate the remainder to percentage of Al_2O_3.

Note: The Al_2O_3 thus determined will include P_2O_5 and certain other impurities, if not corrected for, but for ordinary purposes these are usually neglected.

Lime

To the combined filtrates from the original precipitate with NH_4OH add a few drops of NH_4OH and heat to boiling. Add while boiling 35 cc. of a saturated $(NH_4)_2C_2O_4$ solution and continue the boiling until the precipitate becomes granular. Then let stand 20 minutes or until the supernatent liquid is clear. Filter and wash thoroughly with boiling water, avoiding any unnecessary excess. Place the wet filter and precipitate in a platinum crucible and burn off the paper over a small flame or in a muffle. Ignite the residue, dissolve in hot dil. HCl and dilute to 100 cc. with water. Add NH_4OH in slight excess and boil. If a small amount of $Al(OH)_3$ separates, filter it out, wash with 2 per cent NH_4Cl solution, ignite, weigh and add this weight to that found in the first determination. Then reprecipitate the CaO with $(NH_4)_2C_2O_4$, let stand until settled, filter, wash thoroughly with boiling water, ignite to constant weight in a platinum crucible and calculate the weight to percentage of lime, CaO.

Notes: (1) The CaO thus determined will also include any SrO, but in ordinary analysis the amount of the latter is considered negligible.

(2) For routine work the volumetric method given below is quicker. The results obtained include any SrO but otherwise are accurate.

VOLUMETRIC METHOD: After precipitating the CaC_2O_4 the first time as above described, stir vigorously and let stand until the precipitate has settled. Filter on an 11-cm. paper and wash 10 times with hot water, using not more than 125 cc. Transfer the paper and precipitate to the beaker in which the precipitation was made, spreading the paper out against the upper portion of the beaker. Wash the precipitate from the paper with a jet of hot water, fold the paper and leave it adhering to the upper portion of the beaker. Add 50 cc. of dil. H_2SO_4 (1:10), dilute to about 250 cc. with hot water and heat to a temperature of 80-90 deg. C. Titrate with standard $KMnO_4$ solution until the pink end-point is obtained. Then drop the folded filter paper down into the liquid. The pink color will be discharged. Finish the titration by adding $KMnO_4$, a drop at a time, until the pink end-point is again obtained. From the total titration calculate the percentage of CaO.

Note: 0.1 N $KMnO_4$ may be used for this titration, in which case 1 cc. = 0.002804 gram CaO. Where many titrations are to be made, however, it is more convenient to use a solution containing 5.64 grams of $KMnO_4$ per liter. With such a solution 1 cc. = approximately 0.005 gram CaO and it can be adjusted to exactly this figure, in which case, using a 0.5 gram sample, 1 cc. of the solution = 1 per cent CaO. It is preferable to use a 100-cc. burette in these titrations.

Magnesia

Acidify the combined filtrates from the Ca precipitates with HCl, concentrate to about 150 cc. and heat to boiling. To the boiling solution add 10 cc. of saturated $Na(NH_4)HPO_4$ solution and boil for several minutes. Then cool to room temperature and add NH_4OH, drop by drop with constant stirring, until the crystalline precipitate begins to form; then add a moderate excess and continue stirring for several minutes. Let stand in a cool place overnight and filter.

Dissolve the precipitate in hot dil. HCl, dilute to about 100 cc., add 1 cc. of saturated $Na(NH_4)HPO_4$ solution and NH_4OH, drop by drop with constant stirring, until the precipitate is again formed and the NH_4OH is present in moderate excess. Then let stand in a cool place overnight, filter on a Gooch crucible previously ignited and weighed, wash with dil. NH_4OH (1:10), containing a few drops of conc. HNO_3, ignite in a muffle, cool in a desiccator and weigh as $Mg_2P_2O_7$. Calculate to percentage of MgO.

Calculation: $Mg_2P_2O_7 \times 0.3621 = MgO$.

Notes: (1) In case a muffle is not available, the Gooch crucible may be placed in a larger platinum crucible and ignited directly over a flame. Sufficient heat should not be used to melt or fuse the precipitate.

(2) If the limestone contains Mn, a portion of this will be included in the precipitate as $Mn_2P_2O_7$. In ordinary analysis, however, this is neglected.

(3) For a more detailed analysis, including CO_2, S, P and Mn, the reference should be consulted.

Reference: American Society for Testing Materials, Standard C 25-29.

Analysis of Sulphur *

Tentative Standard Method of the Technical Association of the Pulp and Paper Industry

Sulphur is used in the paper industry in the manufacture of bisulphite liquor. Every 100 pounds of sulphur should yield theoretically 200 pounds of SO_2. A yield of 190 pounds, however, is usually considered satisfactory on a commercial basis. Sulphur is obtained in a very pure state by the Frasch process in Texas and Louisiana. Sicilian sulphur is produced by less refined methods and may contain more impurities than the American product. The impurities most commonly found are dirt and selenium. A good sulphur should contain less than 1 per cent of foreign matter.

Sampling

Package shipments shall be sampled with a trier from at least 10 per cent of the packages. Bulk shipments shall preferably be sampled at regular intervals from the conveyor while the car is being unloaded. If this is not possible, approximately equal portions shall be taken from all parts of the car or other carrier, preferably at different depths, to give a fair average of the whole cargo. The total sample shall be crushed, mixed and quartered down to a convenient size for the laboratory (about 1 quart). Before the last quartering no particles shall be larger than ¼ inch in diameter. The final sample shall be ground to pass a No. 10 screen and preserved in an air-tight container.

* This method has been approved by the Non-Fibrous Materials Testing Committee of the Technical Association of the Pulp and Paper Industry. Suggestions and criticisms should be sent to R. C. Griffin, Chairman, 30 Charles River Road, Cambridge, Mass.

Apparatus

The extraction apparatus shall be of the Underwriters' laboratory type. Instead of the Gooch crucible with asbestos mat, a Jena glass extraction thimble with fused-in disc having a porosity of 5 to 7 may be used.

Analysis

ASH: Burn a weighed sample of 10 grams very cautiously in a platinum or porcelain crucible. Ignite the residue finally to constant weight, cool in a desiccator and weigh. Calculate to percentage.

SULPHUR: For ordinary routine work Method 1 is sufficiently accurate. For very accurate determinations Method 2 shall be used.

Method 1: Weigh 1 gram of the sample in the Gooch crucible or Jena glass extraction thimble and extract in the extraction apparatus for at least 15 minutes with carbon bisulphide. Remove the container, dry and weigh. Report the percentage of insoluble residue as *foreign matter.* (This includes the ash.) The determination shall be run in duplicate. The percentage of sulphur shall be the difference between 100 per cent and the percentage of foreign matter.

Note: Organic impurities may dissolve in the CS_2, causing a slight inaccuracy by this method.

Method 2: The determination shall be run in duplicate on 0.5 gram samples. Weigh each portion into a 250-cc. porcelain dish, warm to 30 deg. C. and add about 6 cc. of bromine. Keep the mixture at this temperature for about 10 minutes and then add 15 cc. of concentrated HNO_3 previously brought to 30 deg. C. After the violent reaction has subsided, heat the mixture cautiously at first and then boil to drive off the HNO_3. Add about 0.5 gram of NaCl to avoid loss of H_2SO_4 and evaporate the mixture to small volume. Repeat the evaporation 3 or 4 times, adding after each evaporation about 5 cc. of conc. HCl. Take the final evaporation to dryness on the steam bath and heat the residue gently. Take up this residue with 5 cc. of HCl (1:1) and about 100 cc. of water, filter out the insoluble matter and wash thoroughly on the filter paper with hot water. (This may be ignited and weighed, if the amount of insoluble matter is desired.)

Transfer the filtrate to a 500-cc. volumetric flask, dilute to the mark and thoroughly mix. Pipette a 100-cc. aliquot into a beaker, heat to boiling and add 10 cc. of 10 per cent $BaCl_2$ solution drop by drop to the boiling solution with constant stirring. Stir the solution thoroughly and let stand over night. Filter out the precipitate, wash with boiling water, dry, ignite and weigh as $BaSO_4$. Calculate to percentage of S, correcting for the aliquoting of the solution.

Calculation: $BaSO_4 \times 0.1373 = S$.

SELENIUM: Intimately mix 10 grams of the sample with 50 grams of a flux consisting of 4 parts of Na_2CO_3 and 1 part of $NaNO_3$, and heat gently in a large nickel crucible until fused. When the melt appears homogeneous, cool and extract with water. Sodium selenate and tellurate pass into the solution. Acidify the water extract with HCl and boil until no further Cl is evolved, as determined by testing the vapors with starch-iodide paper. To the remaining solution add an equal volume of conc. HCl and pass SO_2 gas through it until saturated. The Se precipitates as the free metal, while any Te present remains in solution. Filter the solution through a Gooch crucible with an asbestos mat which has previously been dried at 105 deg. C. and weighed; wash first with moderately conc. HCl, followed by dil. HCl, then with water until free from acid and finally with alcohol. Dry the residue at 105 deg. C., weigh as metallic Se and calculate to percentage.

Note: There exists a considerable difference of opinion in regard to the moisture content of sulphur and the proper method of determining it. From a study of the existing data the Nonfibrous Materials Testing Committee believes that excessive moisture is rarely, if ever, present in commercial shipments of sulphur. An authority who has had long and intimate experience with sulphur says "Sulphur is not wettable and in fact is almost repellant to water so that I can see no practical reason for specifying an academic method for the determination of water." A study by the chairman of the committee of various proposed methods for determining moisture in sulphur indicates that none of them is sufficiently reliable to be recommended by the committee.

Determining the Time of Ink Absorption of Blotting Paper*

Tentative Standard Method of the Technical Association of the Pulp and Paper Industry

I. Reagents

The ink used for this test is in accordance with the following formula of the United States Government Master Specification for Writing Ink (F. S. B. No. 164):

	Grams
Tannic Acid	11.7
Gallic acid crystals	3.8
Ferrous sulphate	15.0
Hydrochloric acid, dilute, U. S. P.	12.5
Carbolic acid (phenol)	1.0
Soluble blue, color index No. 707	3.5
Water to make a volume of 1000 cubic centimeters at 21 deg. C.	

All chemicals are of C. P. quality. Some blue dyes react with carbolic acid to cause a film having a metallic appearance and such dyes should not be used.

In making the ink, the ferrous sulphate is dissolved in cold water, and to this solution is added, in the order given, hydrochloric acid; tannic acid, gallic acid, and the dye, all dissolved separately in warm water; and finally the carbolic acid. The mixture is then diluted with water to a volume of 1000 cc. at 21 deg. C. Distilled water is used.

II. Specimen

The test specimen shall consist of a single sheet of the paper, approximately 4 x 4 inches. The test specimens shall be taken from different rolls or packages selected from the different units of the lot of paper in such a way as to be thoroughly representative of the entire lot.

* This method has been approved by the Paper Testing Committee of the Technical Association of the Pulp and Paper Industry. Suggestions and criticisms should be sent to B. W. Scribner, Chairman, c/o Bureau of Standards, Washington, D. C.

III. Procedure

The tests shall be made on paper conditioned according to the official method for conditioning and in the atmospheric conditions therein specified.

The test specimen is placed on a 4-mesh wire screen, slightly dished and supported by the edges so that the ink remains in a pool in the center. 1 cc. of the ink, at a temperature of 21 deg. C. is flowed on the specimen near its center from a pipette, the tip of which is held one-half inch from the specimen. The time of delivery of the ink must not exceed 6 seconds. The time of absorption is measured in seconds with a stop watch, from the start of flow of ink from the pipette until the 1 cc. of ink is completely absorbed, as indicated by no further reflection of light from the ink when it is viewed at an angle. An equal number of tests shall be made on each side of the paper and not less than 10 specimens shall be tested.

IV. Report

The report shall give the minimum, maximum, and average time of ink absorption in seconds.

V. Additional Information

The reproducibility of average test results secured by this method is usually within 5 per cent.

Further information is contained in:

Reed, Determining the Absorbency of Paper, Paper, 21, No. 19, p. 14 (Jan. 16, 1918).

Determination of Rate of Absorption of Water by Bibulous Papers *

Tentative Standard Method of the Technical Association of the Pulp and Paper Industry

I. Scope

This method is applicable to paper having a fairly rapid rate of water absorption, such as paper toweling.

II. Specimen

The test specimen shall consist of a single sheet of the paper approximately 4 x 4 inches. The test specimen shall be taken from different rolls or packages selected from different units of the lot of paper in such a way as to be thoroughly representative of the entire lot.

III. Procedure

The tests shall be made on paper conditioned according to the official method for conditioning and in the atmospheric conditions therein specified.

The specimen is placed on a 4-mesh wire screen. A 1-cc. measuring pipette graduated in hundredths of a cc. is filled with water at a temperature of 21 deg. C. The pipette is held at an angle of about 30 degrees with the horizontal, with the tip nearly in contact with the paper, and 0.1 cc. of water is allowed to flow on the specimen near its center. While the water is flowing, the tip of the pipette is kept in the drop of water until the delivery of the water is completed. If the time of absorption is more than 2 minutes, the water on the paper should be covered with a watch glass. The rate of absorption is measured in seconds from the start of flow of water until the drop of water is completely absorbed as indicated by no further reflection of light from it when viewed at an angle. The time shall be measured with a stop watch. An equal number of tests shall be made on each side of the paper and not less than ten specimens shall be tested.

IV. Report

The report shall give the minimum, maximum and average rate of absorption in seconds.

V. Additional Information

The reproducibility of average test results secured by this method is usually within 5 per cent.

A device developed by Carson, Bureau of Standards, for making this test is recommended as an aid to accuracy. This consists of a pipette so arranged as to deliver the correct amount of water automatically at the desired angle.

Further information is contained in the following:

Carson, Testing Paper for Permeability to Liquids, Paper Trade Jr., 80, No. 10, p. 59 (Mar. 5, 1925).

Scribner, Standards for Paper Towels, Bureau of Standards Circular No. 294 (1925).

* This method has been approved by the Paper Testing Committee of the Technical Association of the Pulp and Paper Industry. Suggestions and criticisms should be sent to B. W. Scribner, Chairman, c/o Bureau of Standards, Washington, D. C.

German TAPPI to Meet

The annual meeting of the Verein der Zellstoff und Papier-Chemiker und Ingenieure will be held on December 2 and 3 in the House of the German Engineers Association. Among the papers to be presented are the following:

"Cellulose as a Source of Bituminous Coal and Petroleum," by Professor Berl of Darmstadt.

"The Length of Chains of Cellulose of Native Composition and Length of Chains of Acetyl-Xylaus of Deciduous Trees," by Professor E. Schmidt of Munich.

"New Developments in the Use of Power and Heat," by Dr. von Lassberg.

"Theory of Rosin Sizing," by Professor Lorenz of Kothen.

Any member of the Technical Association of the Pulp and Paper Industry is cordially invited to attend.

TAPPI Lake States Section to Meet

The Lake States Section of the Technical Association of the Pulp and Paper Industry will meet at the Conway Hotel, Appleton, Wis., on Thursday, November 10, 1932.

Paul Boronow of the Valley Iron Works, Appleton, Wis., will read a paper on "The Care and Design of Pulp Strength Testing Equipment."

James A. Porter of the W. A. Jones Foundry and Machine Company of Chicago, Ill., will read a paper on "Speed Reducers in the Pulp and Paper Industry."

TAPPI Kalamazoo Valley Section Elects

At a recent meeting of the Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry in Kalamazoo, Mich., Harry Bradford, secretary of the Rex Paper Company, was elected chairman, C. C. Schneider of the Hawthorne Paper Company, was elected vice chairman, and R. B. Barton of the Michigan Paper Company, Plainwell, Mich., was elected secretary.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Port Edwards, Wis.—The Nekoosa-Edwards Paper Company has plans for a new two-story addition to mill, to be 60 x 120 feet, designed primarily for storage and distributing service. Superstructure will be placed under way at once by day labor.

Emeryville, Cal.—The Pariffine Companies, Inc., 475 Brannan street, San Francisco, Cal., manufacturer of building paper stocks, fiberized and composition products, has plans under way for the construction of a new addition to mill at Emeryville, where company has a tract of 32 acres of land. Exact size of new unit has not been announced, but it will be of large proportions. Cost is reported over $100,000, with equipment.

Baltimore, Md.—The Penn Paper Stock Company, 652 West Lombard street, is planning rebuilding of portion of storage and distributing plant, location noted, recently damaged by fire, with loss reported close to $20,000.

Milwaukee, Wis.—The Western States Envelope Company, 1616 West Pierce street, has begun the construction of a new addition to paper converting plant, to be two-story, 71 x 109 feet. Contract for structural steel framing has been awarded to the Lakeside Brick & Steel Company, Milwaukee. James B. Cowper is superintendent in charge.

Milwaukee, Wis.—The Hummel & Downing Company, East Wisconsin avenue, manufacturer of paper boxes and containers, has adopted a 44-hour-day-week in all departments at its plant, giving employment to large working quota.

Childs, Md.—The Elk Paper Manufacturing Company, recently organized, as reported in these columns, is rearranging machinery and equipment at the former Marley Paper Mill at Childs, lately acquired, and will develop plant for the manufacture of a line of high grade wrapping papers. The work is being carried out by company forces and is expected to be completed at early date. It is understood that certain new equipment will be provided. O. R. Emigh is general manager of new company.

Chicago, Ill.—The Crane Paper Stock Company has recently completed rebuilding and remodeling of its building at 813 West 22nd street, damaged by fire some time ago, and has removed again to that location, where headquarters and operations will be centralized in future.

Wausau, Wis.—In connection with expansion program at St. Paul, Minn., plant, previously reported in these columns, the Minnesota Mining and Manufacturing Company, 791 Forest street, St. Paul, manufacturer of sandpaper and kindred abrasive materials, is arranging early construction of a new mill at Wausau, Wis., to be used for quartz grinding service for composition roofing manufacture. It is understood that the new line of roofing will be paper-backed, as in the case of other company specialties, which include adhesive stocks. The new Wausau mill will have a department for artificial coloring service, and is reported to cost over $50,000, with equipment. The St. Paul expansion consists of two top story additions to existing mills, and is reported to cost close to $40,000, including equipment. Toltz, King & Day, Inc., Builders' Exchange Building, St. Paul, are architects for company. W. L. McKnight is president.

Cincinnati, Ohio—The Ohio Knife Company, Dreman street and Baltimore & Ohio Railroad, manufacturer of knives for industrial service, reports sizeable increased demand for knives used in paper and pulp mills, and printing plants, and is advancing production schedule for knives in this line. H. W. Randolph is president.

New Companies

New York, N. Y.—The H. O. S. Sandpaper Company, Inc., has been incorporated with a capital of $20,000, to manufacture and deal in sandpaper and other abrasive paper stocks. The principal incorporator is Herman O. Sundhauss, 340 East Forty-fourth street, New York, company is represented by Guiterman & Wilson, 45 Cedar street, New York, attorneys.

Chicago, Ill.—The Pyramid Paper Corporation, 209 West Jackson boulevard, has been incorporated with a capital of $10,000, to deal in paper products of various kinds. The incorporators are Edward D. Levinsohn, Lewis I. Thomas and Roger D. Doten.

Albany, Ind.—The T. F. Hart Paper Company, Albany, has filed final notice of company dissolution under state laws.

New York, N. Y.—The Keap Bag and Paper Corporation has been organized with a capital of $20,000, to deal in paper goods of various kinds. The incorporators include Barney Gilman, 178 Madison avenue, New York; and Joseph Gilman, 270 South Second street, Brooklyn, N. Y.

Chicago, Ill.—The Burlington Fiber Company, Inc., 1019 West 16th street, has been organized with a capital of $10,000, to deal in fiber and kindred products. The incorporators include E. Borkan and N. S. Caplow. Maurice I. Davis, 228 North LaSalle street, Chicago, is company representative.

Chicago, Ill.—The Kilmar Company, 205 West Wacker drive, has been incorporated with a capital of $10,000, to deal in paper products of various kinds. The incorporators include Edward Witt and Jean Espermaner.

New York, N. Y.—The Allied Sand Paper, Inc., has been incorporated with a capital of $5,000, to deal in sandpaper and other abrasive paper materials. Simon S. Feinstein, 1560 Broadway, New York, attorney, is company representative.

PAPER MEN OPPOSE TARIFF ON WOOD PULP

(Continued from page 13)

Due to the heavy cutting of the stands of timber suitable for pulp in the New England and Lake states, there has been a tendency to shift the centers of wood pulp production from those sections to the South and West.

Within the past six or seven years there has been built a number of pulp mills, located principally in the Pacific Northwest, for the announced purpose of manufacturing wood pulp for sale. In many cases, when these mills were being financed, it was stated:

(a) That due to the favorable location of the proposed mill it could secure its wood, the raw material for wood pulp, from saw mill waste at practically no cost, thereby enabling it to undersell the foreign manufacturers; and

(b) That the plans included the erection of a paper mill at some future date for converting the wood pulp into paper, since many economies are possible when the pulp and paper manufacture is conducted under one management.

In some cases the pulp mills were partially financed by paper mills which in return received a priority on pulp for their requirements.

The development was viewed with alarm by many paper manufacturers and lumbermen who realized that it had not yet been fully demonstrated that a satisfactory grade of wood pulp could be manufactured from the available waste materials of saw mills, and that an expansion program as contemplated would create a ruinous domestic competition between the pulp manufacturers of the east and west. In spite of the vigorous opposition the promoters went forward with their plans and between 1925 and 1931 the capacity of the wood pulp mills in Washington and Oregon was increased from twelve plants equipped to produce 1,499.5 tons per day in 1925, to twenty-eight an increase of 2,563 tons. This increase was secured by building sixteen new plants with a total daily capacity of 1,852.5 tons and increasing the capacity of nine of the remaining twelve plants by 710.5 tons per day, an increase of more than 50 per cent over their capacity in 1925.

CAPACITY OF WOOD PULP PLANTS IN WASHINGTON AND OREGON

(As given in Lockwood's Directory of the Paper and Allied Trades. 1925 figures are from 1926 edition; 1931 figures are from 1932 edition.)

Plant	Location	1925	1931	Increase
Oregon		(Short Tons per Day)		
Sitka Spruce Pulp & Paper Co.....	Empire	...	60	60
Crown Willamette Paper Co.....	Lebanon	20	35	15
Spaulding Pulp & Paper Co.....	Newberg	...	60	60
Crown Willamette Paper Co.....	Oregon City..	60	60	...
Hawley Pulp & Paper Co.....	Oregon City..	185	255	70
St. Helens Pulp & Paper Co.....	St. Helens....	...	110	110
Oregon Pulp & Paper Co.....	Salem	80	120	40
Crown Willamette Paper Co.....	West Linn....	462	467	5
Washington				
Puget Sound Pulp & Timber Co...	Anacortes	25	65	40
Puget Sound Pulp & Timber Co...	Bellingham ..	...	100	100
Crown Willamette Paper Co.....	Camas	245	490	245
Everett Pulp & Paper Co.....	Everett	32.5	50	17.5
Puget Sound Pulp & Timber Co...	Everett	...	165	165
Grays Harbor Pulp & Paper Co...	Hoquiam	...	150	150
Longview Fibre Co.....	Longview	...	140	140
Pacific Straw Paper & Board Co...	Longview	...	30	30
Weyerhauser Timber Co.....	Longview	...	175	175
Fiberboard Products, Inc.....	Port Angeles..	60	60	...
Olympic Forest Products Co.....	Port Angeles..	...	175	175
Washington Pulp & Paper Corp....	Port Angeles..	185	335	150
National Paper Products Co.....	Port Townsend	...	250	250
Rainier Pulp & Paper Co.....	Shelton	...	175	175
Inland Empire Paper Co.....	Spokane	105	133	28
St. Regis Kraft Co.....	Tacoma	...	162.5	162.5
Shaffer Box Co.....	Tacoma	...	55	55
Tumwater Paper Mills.....	Tumwater	...	20	20
Columbia River Paper Mills.....	Vancouver ...	40	140	100
Everett Pulp & Paper Co.....	West Tacoma.	...	25	25
Totals	.....	1,499.5	4,062.5	2,563

This enormous increase in capacity by the pulp mills in Washington and Oregon, is shown in the preceding table. It was made at a time when the production and consumption of wood pulp in the United States was showing an annual average increase of less than five per cent per year.

The result of the hasty and ill-advised expansion in the Pacific Northwest has been exactly as anticipated. The quality of the pulp produced did not at first satisfy the standards of the pulp purchasing mills, whose output of established grades of papers required pulp of definite characteristics. This situation forced the new pulp mills on the West Coast to experiment in order to produce the proper grades. In the meantime it was necessary for them to operate at as near capacity as possible in order to pay interest on their investments. The result of their operation was "distress" pulp which was thrown on the market at prices below those quoted on foreign and other domestic pulp in a two-fold effort to get rid of their production and to "buy their way into" the market.

Price always has an appeal and certain of the mills which had been purchasing pulp elsewhere, attempted to use the Pacific Coast pulp. As a result many of the pulp manufacturers in the eastern and midwestern states, found it necessary to drop their prices, often operating at a loss in order to meet this competition; and the domestic paper mills which also own pulp operations found themselves in a position where they could, in many cases, purchase pulp cheaper than they could produce it, thereby making it necessary for them either to close down their pulp operations or to operate at a loss.

Responsibility of West Coast Interests

The West Coast interests, who alone were responsible for the situation, attempted to place the entire blame on the importation of foreign pulp, and managed to convince many of the eastern pulp manufacturers that the only hope for the industry lay in a tariff which would exclude foreign pulps. An effort was made at the time the Tariff Act of 1930 was written, to place a duty on wood pulp, but the facts did not substantiate the need for a duty and Congress rightfully retained wood pulp on the free list where it had been for many years. The matter went along for some time with the production on the West Coast becoming greater and greater and that of the Lake and Atlantic states becoming smaller and smaller, and with the West Coast interests quoting prices which were ruinous to eastern pulp interests and forcing the prices of wood pulp lower and lower.

In September 1931 a great many of the pulp producing countries were forced to abandon the gold standard, and the West Coast and Maine pulp interests united in a movement to secure legislation which would place a tariff duty on wood pulp and newsprint coming from those countries, equal to the full amount that the currency had depreciated. Realizing that if they singled out wood pulp and newsprint, the two items they wished particularly to keep out, it would become class legislation and would have little chance of enactment, they adopted the plan of general legislation covering both the free list and the dutiable list, thereby endeavoring to place tariff duties on all items coming from all countries which had left the gold standard.

The movement was launched under the guise of an

effort to bring back our tariff duties to what had been contemplated when the Tariff Act of 1930 was passed, and under the appeal of balancing the budget. Both ideas were in general favor and at first the movement gained considerable support. However, an analysis of the proposed legislation showed that in reality it would,

(a) place a duty on hundreds of items which had been on the free list for many years and which had not been relied upon to bring in any revenue under the Tariff Act of 1930; and

(b) that the proposed legislation was not for the purpose of bringing our tariff revenues back to the original estimates, but that the duty contemplated under the proposed legislation equalled the full amount that the currency had dropped, and not the percentage of this amount that would have been paid this Government in tariff duties had the countries stayed on the gold standard.

Currency Depreciation Report

Congress called on the United States Tariff Commission for a report on the effect of the depreciation of currency on our imports and exports, and especially on wood pulp and pulpwood. The Commission made a thorough investigation in which it found that in countries which had left the gold standard commodity prices had increased, thereby tending to offset any apparent advantage; and that particularly in connection with wood pulp this was the case, for the prices of imported wood pulp did not show a tendency to decrease at any greater rate than they were already decreasing in accordance with the general downward trend of prices prior to the time certain of the pulp producing countries went off the gold standard. The facts were laid before Congress, with the result that the depreciated currency legislation and the effort to place a direct duty on wood pulp were both defeated in the last session.

The statement alleged to have been made in the petition that the Oregon and Washington pulp and paper industry is fast approaching extinction is not borne out by the facts. Figures compiled and published by the Bureau of the Census show that from 1925 to 1930 the production of wood pulp in the state of Washington increased approximately 250 per cent, and that during the same period the production in Oregon, including a small amount manufactured in California, increased more than 50 per cent. The total production of the three states was more than 2½ times as much in 1930 as in 1925. These increases were during a period when the total wood pulp production of the United States increased approximately only 17 per cent, showing that the gain by the Washington and Oregon pulp mills was at the expense of the pulp mills in the other sections of the United States. Figures for 1931 have not been published by the Bureau of the Census but estimates indicate that the Washington and Oregon mills are still maintaining their relative gain.

During this same period (1925-1931), as pointed out above, the percentage of domestic consumption of wood pulp furnished by imports has not increased, and the actual volume of imported wood pulp has decreased. During the first 8 months of 1932 the imports of wood pulp continued to decrease and were materially lower than during the corresponding period of 1931. During this same period the average invoice value per ton of all wood pulp imported into the United States has been very steady with the average for August 1932 slightly greater than that for January 1932. The data further show that the invoice value per ton of imports of all chemical wood pulp from countries which have been forced off the gold standard is now slightly greater than the invoice value per ton of imports of all chemical wood pulp from gold standard countries, further disproving the contention that the mills in Washington and Oregon have been affected by imports from countries off the gold standard.

Seriousness of Situation

The seriousness of the situation is brought out by the fact that 571 paper mills depend upon the purchase of wood pulp for their operations. These mills have been built up from generation to generation on the basis that they will be able to purchase sufficient pulp of the grades necessary to enable them to operate. They are located in the smaller towns, more than half of them being in towns of under 10,000 population. They are the life blood of the town—in many cases the only industry—and to close them would mean the abolishment of the town, with the resulting loss in property values, employment, taxes, etc. Entire states, such as Illinois and Indiana which have 29 and 25 paper mills respectively, do not have a single pulp mill within the state, and are dependent entirely on purchasing foreign and domestic pulp for their operations. Contrasted with this we have the 221 paper mills which manufacture their own pulp, and approximately only a dozen independent pulp mills whose principal business is the manufacture of pulp for sale.

Any kind of a duty on wood pulp, therefore, would favor only a few pulp producers who during the last six or seven years, in the face of an already over-expanded industry and an over-supplied market, and against the advice and wishes of most of the leaders in the pulp and paper industry, have erected more than a dozen large pulp mills despite the predictions that their ventures were destined to meet with financial failure. Once they have the pulp market under their control these pulp mills will go forward with the plans originally announced for the erection of mills for the manufacture of paper, and thereby become competitors in the finished products of the mills to which they would be selling their surplus pulp. The result is evident. It would mean the ruin of the pulp purchasing mills which would find the foreign supply cut off by a tariff wall and the supply of domestic pulp in the hands of a competing manufacturer who could sell or not, at will, and run the price up with ease.

The larger available stands of woods suitable for pulp are in the hands of a relatively few people, who are well aware of the value of their timber holdings. It is not possible for the owner of the average paper mill to purchase a sufficient stand of wood to enable him to operate a pulp mill, and even if he could purchase timberlands suitable for pulpwood, the distance from his mill would generally make it economically impossible.

The result of a tariff duty on wood pulp, then, would be to place the control of the paper industry in the hands of those mills that control their own pulp and timber supply. The 571 paper mills that are dependent upon a purchased supply of wood pulp would be completely at the mercy of their 221 pulp-producing competitors, and would be driven out of business. A migration of paper-producing plants would take place, away from Indiana, Illinois, Massachusetts, New York, Pennsylvania and the other Eastern and Central States, and toward the Pacific Northwest.

It is a question of whether or not it is in the public interest to have the paper industry placed in the hands of a few powerful companies, thereby eliminating the free competition which has built up the industry and is the life blood of hundreds of smaller communities. It may sound like a far cry from the petition now before you to domination of the paper industry by a few powerful combines, but an analysis will show that such is the situation, and

that the plan is being woven slowly, carefully, in much the same way that our huge public utility companies gained control of the public utilities of the country. The planned-for result is the substitution of a vast heartless creature, evading responsibility and control, for hundreds of smaller operations in the smaller communities, paying taxes and providing employment.

We implore you, Mr. President, in behalf of the hundreds of converting mills which would be ruined, of the communities that would be impoverished, and of the thousands of American workmen who would be deprived of their livelihood, by a duty or tax of any kind on wood pulp, to deny the petition of the Oregon and Washington mills insofar as it would place an import duty or tax on wood pulp.

Respectfully,

(Signed) H. P. CHRISTIAN

Chairman, Temporary Committee, Opposing Tariff on Wood Pulp.

The following is a partial list of cities and towns in which are located paper mills sponsoring the work of the temporary committee opposing tariff on wood pulp:

Connecticut: East Hartford, Montville, New Haven, New London, Seymour, Versailles, Windsor and Windsor Locks.

Delaware: Newark.

Illinois: Alton, Aurora, Chicago, Morris, Peoria, Quincy, Rockford and Taylorville.

Indiana: Brookville, Carthage, Delphi, Elkhart, Fort Wayne, Hartford City, Indianapolis, Kokomo, Marion, Muncie and Vincennes.

Iowa: Fort Madison and Tama.

Kansas: Hutchinson.

Maine: Madawaska and South Windham.

Minnesota: St. Paul.

Maryland: Baltimore, Childs and Whitehall.

Massachusetts: Baldwinsville, East Pepperell, East Walpole, Erving, Fitchburg, Haverhill, Holyoke, Lawrence, Middlefield, Millers Falls, South Hadley, South Hadley Falls, West Dudley, West Springfield, Westfield and Woronoco.

Michigan: Battle Creek, Kalamazoo, Menominee, Monroe, Niles, Otsego, Plainwell, Port Huron, River Rouge, Three Rivers, Vicksburg, Watervliet, White Pigeon and Ypsilanti.

New Hampshire: Bennington, Claremont, Hinsdale, Northumberland and West Henniker.

Washington: Tacoma.

Wisconsin: Green Bay, Kaukauna, Menasha and Milwaukee.

New Jersey: Clifton, Bogota, Camden, Delair, Garfield, Gloucester City, Milford, Passaic, Ridgefield, Ridgefield Park and Riegelsville.

New York: Albany, Ancram, Brooklyn, Carthage, Castleton-on-Hudson, Clayville, Dansville, Deferiet, East Rochester, Fayetteville, Fulton, Greenwich, Hoosick Falls, Hudson Falls, Little Falls, Lockport, Mumford, New York City, Newburgh, Norfolk, North Hoosick, Norwood, Phoenix, Piermont, Potsdam, Pulaski, Raymondville, Rochester, Scottsville, Skaneateles, Stockport, St. Regis Falls, Tonawanda, Walloomsac and Watertown.

Ohio: Baltimore, Chagrin Falls, Chillicothe, Cincinnati, Circleville, Crescentville, Dayton, Delphia, Franklin, Hamilton, Jaite, Lockland, Middletown, Rialto, Rittman, Sandusky, Steubenville, St. Marys and Urbana.

Pennsylvania: Bristol, Buck Run, Chester, Downington, Lansdowne, Lititz, Miquon, Modena, Mount Holly Springs, New Hope, Norristown, Philadelphia, Reading, Spring Grove, Swarthmore, Tarentum, West Conshohocken and York.

Rhode Island: Philipsdale and Pawtucket.

Tennessee: Chattanooga.

Vermont: Bellows Falls, Gilman and Wells River.

Virginia: Richmond and Winchester.

West Virginia: Wellsburg.

Premier Assails News Print Interests

MONTREAL, Que., October 31, 1932.—Canadian news print magnates were soundly trounced by Premier Taschereau for their failure to put their industry on a satisfactory basis, and for "cutting each others throats and stealing each other's customers." Mr. Taschereau was addressing a large gathering of prominent Liberals at the Reform Club, one of the speakers being W. L. Mackenzie King, leader of the Liberal Party in the Dominion Parliament.

Premier Taschereau said: "Now to the problem of the paper industry. You have seen the richest and most prosperous paper companies on the verge of ruin. Why? When the paper companies tell us of the difficulty of their situation, I point out that we make as much paper in Canada today as we did in 1927, which was the greatest year of the industry. The price is very low, but it is as high as it was in 1912 when paper was one of our greatest industries and we thought ourselves prosperous.

"It has been said that it is the fault of the government. It always is. But I ask any man who studies the situation, what part has the government played in the development of the industry in recent years? The trouble is that there are too many business men and not enough papermakers in that industry.

"Those big business men are always very happy in talking about politicians as people who know nothing. And yet these great business men have been meeting for months and years and they cannot come to an agreement.

"They are cutting each other's throats and stealing each other's customers. If they would get together and be business men, as they claim to be, the remedy is in their own hands. If they want to remedy the situation it will be very easy. But it always is easier to sit back and blame the government.

"Our adversaries say we sold the resources of the province to the Americans. But Americans only possess one-fourth of the concessions in Quebec. Three-fourths are held by Canadians. Exclude Americans? Where would Shawinigan be? And Grandmere and Lake St. John and the Gatineau and all the industries of the eastern townships? A country like ours that lacks the means to develop its own resources has no better policy than to invite foreign capital. And how can we prevent American companies from buying the concessions and mills of our Canadian companies? Shall we build a wall around the province and shut ourselves in like Robinson Crusoe on his island? We believe that the best means of developing our resources is to get foreign capital to help."

Fire Destroys Pulpwood

MONTREAL, Que., October 31, 1932—Forty thousand cords of pulpwood valued at $200,000 and owned by the Bonaventure Pulp and Paper Company have been destroyed by fire at Chandler, Que., according to reports received here.

Part of the town, including the Canadian National Railways buildings, was threatened for a time and officials ordered freight cars and records removed to a place of safety.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING OCTOBER 29, 1932

CIGARETTE PAPER

Champagne Paper Corp., Liberty, Havre, 143 cs.; Standard Products Corp., De Grasse, Havre, 63 cs.; American Tobacco Co., De Grasse, Havre, 350 cs.; Champagne Paper Corp., De Grasse, Havre, 35 cs.; De Manduit Paper Corp., De Grasse, Havre, 160 cs.; American Tobacco Co., Manhattan, Havre, 100 cs.

WALL PAPER

Independent F'd'g Co., Gen. von Steuben, Bremen, 1 cs.; Globe Shipping Co., Manhattan, Hamburg, 2 bls.; Globe Shipping Co., A. Ballin, Hamburg, 3 bls.

PAPER HANGINGS

W. H. S. Lloyd & Co., Port Hunter, London, 6 bls., 1 cs.

NEWS PRINT

Perkins Goodwin & Co., Gen. von Steuben, Bremen, 39 rolls; Jay Madden Corp., Gen. von Steuben, Bremen, 421 rolls; Jay Madden Corp., Scanpenn, Wiborg, 333 rolls; A. S. Zabriskie, Scanpen, Wiborg, 43 rolls; Brooklyn Times, Hjelmaren, Norrkoeping, 653 rolls; Gilman Paper Co., Hjelmaren, Norrkoeping, 398 rolls; Perkins Goodwin & Co., Manhattan, Hamburg, 346 rolls; Parsons & Whittemore, Inc., Stavangerfjord, Oslo, 37 rolls; ——, Stavangerfjord, Oslo, 587 rolls; Perkins Goodwin & Co., A. Ballin, Hamburg, 246 rolls.

PRINTING PAPER

Jay Madden Corp., Scanpenn, Wiborg, 22 bls., 96 rolls.

WRAPPING PAPER

Yardley & Co., Amer. Trader, London, 1 cs.; Van Oppen & Co., Pr. Monroe, Genoa, 10 cs.; Van Oppen & Co., Silvercypress, Genoa, 10 cs.; D. E. Bordner, A. Ballin, Hamburg, 9 cs.

PACKING PAPER

Globe Shipping Co., A. Ballin, Hamburg, 68 rolls.

DRAWING PAPER

Devoe & Reynolds Co., Port Hunter, London, 4 cs.; H. Reeve Angel & Co., Inc., Port Hunter, London, 3 cs.; Keuffel & Esser Co., Port Hunter, London, 2 cs.; Lunham & Reeve, Inc., De Grasse, Havre, 1 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Port Hunter, London, 11 cs.

FILTER MASSE

A. Giese & Son, A. Ballin, Hamburg, 10 bls.

DECALCOMANIA PAPER

American Express Co., Europa, Bremen, 11 cs.; Phoenix Shipping Co., Europa, Bremen, 3 cs.

TRANSFER PAPER

Manhattan Decalcomania Co., Europa, Bremen, 1 cs.; Rohner Gehrig & Co., Europa, Bremen, 9 cs.

SURFACE COATED PAPER

Gevaert Co. of America, Black Gull, Rotterdam, 8 cs.; Globe Shipping Co., Europa, Bremen, 4 cs.; ——, A. Ballin, Hamburg, 3 cs.

BARYTA COATED PAPER

Globe Shipping Co., Gen. von Steuben, Bremen, 10 cs.

METAL COATED PAPER

Schleicher Paper Box Co., Europa, Bremen, 1 cs.; K. Pauli Co., A. Ballin, Hamburg, 17 cs.

COATED PAPER

Happel & McAvoy, A. Ballin, Hamburg, 10 cs.

PHOTO PAPER

American Express Co., A. Ballin, Hamburg, 10 cs.

PARCHMENT PAPER

Bendix Paper Co., A. Ballin, Hamburg, 5 cs.

COLORED PAPER

Tamm & Co., Saturnia, Trieste, 10 cs.; F. Murray Hill Co., Manhattan, Hamburg, 5 cs.

TISSUE PAPER

P. J. Schweitzer, Pr. Monroe, Marseilles, 2 cs.

WRITING PAPER

H. Kayser & fils, De Grasse, Havre, 1 cs.; B. Altman & Co., Manhattan, Havre, 4 cs.

ENVELOPES

Beckhard Simfred Co., Gen. von Steuben, Bremen, 17 cs.

STENCIL PAPER

——, Manhattan, Hamburg, 6 cs.

BRISTOL BOARDS

Keuffel & Esser Co., Port Hunter, London, 1 cs.

CARD BOARD

Coty Processing Co., De Grasse, Havre, 43 cs.

CARD BOARD BOXES

Framerican Importing Co., Pr. Monroe, Marseilles, 4 cs.

PASTE BOARD

Houbigant Inc., De Grasse, Havre, 11 cs.; Roger & Gallet, De Grasse, Havre, 22 cs.; ——, A. Ballin, Hamburg, 17 bls.

MISCELLANEOUS PAPER

Japan Paper Co., Pr. Lincoln, Kobe, 18 cs.; Davies Turner & Co., Port Hunter, London, 14 cs.; Meadows Wye & Co., Port Hunter, London, 1 cs.; Keller Dorian Paper Co., De Grasse, Havre, 4 cs.; Wedeman Godkneckt & Lally, Manhattan, Hamburg, 15 cs.; Natl Paper & Type Co., Stavangerfjord, Oslo, 20 rolls; T. N. Fairbanks, Silvercypress, Genoa, 4 cs.; Japan Paper Co., Silvercypress, Genoa, 4 cs.; Bush Service Corp., A. Ballin, Hamburg, 17 cs.; W. Bersch, A. Ballin, Hamburg, 1 cs.

RAGS, BAGGINGS, ETC.

E. J. Keller Co. Inc., Black Gull, ——, 57 bls. rags; W. Steck & Co., Black Gull, Antwerp, 457 bls. flax waste; G. A. Henshaw & Son. Black Gull, Antwerp, 17 bls. flax waste; G. M. Graves Co., Black Gull, Antwerp, 27 bls. flax waste; J. Damato, Liberty, Havre, 121 bls. rags; ——, Claedonia, Glasgow, 64 bls. rags; The Barrett Co., Port Hunter, London, 105 bls. rags; Castle & Overton Inc., Port Hunter, London, 11 bls. rags; M. Snedeker Corp., Cold Harbor, Belfast, 199 bls. paper stock; E. J. Keller Co. Inc., A. Ballin, ——, 71 bls. rags; E. J. Keller Co. Inc., Manhattan, ——, 497 bls. flax waste.

CASEIN

American Cyanamid & Chemical Corp., W. World, B. Ayres, 84 bags.

HIDE GLUE

——, Gen. von Steuben, Bremen, 100 bags; ——, A. Ballin, Hamburg, 50 bags.

CHINA CLAY

Whitaker Clark & Daniels, Laconia, Liverpool, 280 bags; Whitaker Clark & Daniels, Clairton, Bristol, 390 bags, 30 tons.

OLD ROPE

A. S. Wilson, Black Gull, Antwerp, 56 coils; A. S. Wilson, Caledonia, Glasgow, 72 bls.; National City Bank, Caledonia, Glasgow, 59 coils; ——, Port Hunter, London, 116 bls.; Banco Coml Italiane Trust Co., Saturnia, Trieste, 53 coils.

WOOD PULP

E. J. Keller Co. Inc., Scanpenn, ——, 366 bls. cellulose, 55 tons; Lagerloef Trading Co., Boren, Rauma, 1800 bls. sulphite; Price & Pierce, Ltd., Boren Wallvik, 2100 bls. sulphite; 250 bls. mechanical pulp; Gottesman & Co. Inc., Borgen, Iggesund, 750 bls. sulphite; Perkins Goodwin & Co., Boren Wifstavarf, 600 bls. sulphite; Bulkley Dunton & Co., Boren, ——, 1250 bls. wood pulp; Pagel Horton & Co. Inc., Hjelmaren, Gefle, 4157 bls. sulphite; Stora Kopparberg Corp., Hjelmaren, Gefle, 375 bls. wood pulp; ——, Hjelmaren, Gefle 1250 bls. sulphite; Perkins Goodwin & Co., Hjelmaren, Sundsvall, 900 bls. sulphite; 300 bls. sulphate; Price & Pierce Ltd., Hjelmaren, Skelleftea, 2400 bls. chemical pulp; E. M. Sergeant & Co., Stavangerfjord, Oslo, 300 bls. chemical pulp; The Borregaard Co. Inc., Stavangerfjord, Oslo, 168 bls. sulphate; J. Andersen & Co., Stavangerfjord, Oslo, 150 bls. sulphite; Perkins Goodwin & Co., Stavangerfjord, Drammen, 1250 bls. sulphite; Irving Trust Co., Stavangerfjord, Drammen, 400 bls. sulphite; J. Anderson & Co., Stavangerfjord, Oslo, 800 bls. sulphite; Castle & Overton Inc., A. Ballin, Hamburg, 295 bls. wood pulp, 59 tons.

PULPWOOD

Polarus Shipping Co., Fidelio, Guysboro, 1190 cords; G. S. Kerr, Kem, New Castle, 1200 cords.

WOOD FLOUR

——, Stavangerfjord, Frederickstad, 640 bags; B. L. Soberski, Stavangerfjord, Frederickstad, 3709 bags; State Chemical Co., Black Gull, Rotterdam, 2038 bags, 101250 ks.

WOOD PULP BOARDS

Johaneson Wales & Sparre Inc., Gen von Steuben, Bremen, 487 rolls.

ALBANY IMPORTS

WEEK ENDING OCTOBER 29, 1932

Halifax Power & Pulp Co., Severoles, Sheet Harbor, 8110 bls. pulp.

PORTLAND IMPORTS

WEEK ENDING OCTOBER 29, 1932

Gottesman & Co. Inc., Milos, Sweden, 6990 bls. wood pulp; Bulkley Dunton & Co., Karpfanger, ——, 1750 bls. wood pulp; Bulkley Dunton & Co., Karpfanger, ——, 1750 bls. wood pulp; Bulkley Dunton & Co., Hedderheim, ——, 750 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING OCTOBER 29, 1932

M. Goldburg & Sons, Black Gull, Antwerp, 52 bls. flax waste; F. J. Fawcett, Black Gull, Antwerp, 6 bls. flax waste; 1st Natl Bank of Boston, Black Gull, Antwerp, 39 bls. rags; D. M. Hicks Inc., Black Gull, Antwerp, 157 bls. flax pulp; Atkinson Haserick & Co., Pr. Monroe, Genoa, 8 cs. paper; C. F. Malcolm Inc., Loconia, Liverpool, 21 cs. tissue paper; 1st National Bank of Boston, Laconia, Liverpool, 16 bls. rags; Bulkley Dunton & Co., Sea Thursh, ——, 576 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING OCTOBER 29, 1932

——, Scanpenn, Wiborg, 2758 bls. sulphite, 503 tons; Castle & Overton, Inc., Scanpenn, Wiborg, 6847 bls. wood pulp, 1370 tons; Price & Pierce Ltd., Scanpenn, Orviken, 300 bls. chemical pulp, 50 tons; Miami Valley Importing Co., Scanpenn, Gdynia, 2999 bls. cellulose, 464 tons; Stora Kopparberg Corp., Hjelmaren, Gefle, 875 bls. wood pulp; Gilman Paper Co., Hjelmaren, Norrkoeping, 863 rolls news print; Price & Pierce Ltd., Hjelmaren, Skelleftea, 600 bls. chemical pulp; E. J. Keller Co. Inc., Lehigh, ——, 31 bls. flax waste; 114 bls. rags; E. J. Keller Co. Inc., Examiner, ——, 150 bls. rags; E. J. Keller Co. Inc., Scanyork, ——, 360 bls. wood pulp; Bulkley Dunton & Co., Augsburg, ——, 1250 bls. wood pulp.

WILMINGTON IMPORTS

WEEK ENDING OCTOBER 29, 1932

Price & Pierce Ltd., Scanpenn, Orviken, 6000 bls. chemical pulp.

NORFOLK IMPORTS

WEEK ENDING OCTOBER 29, 1932

Castle & Overton Inc., Boren, Wiborg, 526 bls. wood pulp; W. M. Stone, Boren, Kotka, 246 rolls news print; Old Dominion Paper Co., Boren, Kotka, 113 pkgs. news print; Lagerloef Trading Co., Boren, Kotka, 520 bls. sulphate; 630 bls. sulphite; Lagerloef Trading Co., Boren, Rauma, 1040 bls. mechanical pulp; Gottesman & Co. Inc., Boren, Iggesund, 1250 bls. sulphite; Price & Pierce Ltd., Boren, Frederickskans, 2680 bls. sulphite; Stora Kopparberg Corp., Boren, Frederickskans, 167 rolls news print; The Borregaard Co. Inc., Boren, Gothenburg, 300 bls. chemical pulp; Johaneson Wales & Sparre Inc., Boren, Gothenburg, 240 bls. chemical pulp; Parsons & Whittemore Inc., Boren, Gothenburg, 73 rolls news print; National City Bank, Cold Harbor, Manchester, 55 bls. bagging; ——, Cold Harbor, Liverpool, 54 bls. bagging; 89 coils old rope.

BALTIMORE IMPORTS

WEEK ENDING OCTOBER 29, 1932

Lagerloef Trading Co., Boren, Wiborg, 2468 bls. sulphate; 4210 bls. sulphite; Lagerloef Trading Co., Boren, Kotka, 1550 bls. mechanical pulp; Lagerloef Trading Co., Boren Rauma, 630 bls. sulphite; 170 bls. sulphate; 3335 bls. mechanical pulp; Price & Pierce Ltd., Boren, Wallvik, 1100 bls. sulphite; Perkins Goodwin & Co., Boren, Wifstavarf, 2700 bls. sulphite; Stora Kopparberg Corp., Boren, Frederickskans, 500 bls. wood pulp; The Borregaard Co. Inc., Boren, Gothenburg, 1500 bls. chemical pulp; Gottesman & Co. Inc., Boren, Gothenburg, 930 bls. chemical pulp; Parsons & Whittemore Inc., Boren, Gothenburg, 160 bls. chemical pulp; Perkins Goodwin & Co., Boren, Gothenburg, 1397 bls. sulphite; W. H. Masson Co., Boren, Gothenburg, 6 bls. paper; The Mastan Co. Inc., Boren, Gothenburg, 197 rolls news print; Chase National Bank, Liberty, Havre, 69 bls. rags; Congoleum Nairn Co., Liberty, Havre, 98 bls. rags.

Foreign Pulp for Wisconsin

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., October 31, 1932.—Mills in Wisconsin appear to be availing themselves to a greater extent than ever before of foreign pulp, particularly from Norway and Sweden, presumably due to the low price at which it can be bought as compared to the cost of production in local mills. Within the last ten days, foreign ships docking at Milwaukee, Wis., unloaded a total of 6,250 tons. Early in the season, five shiploads were delivered. Several additional cargoes are expected before the navigation season suspends.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, November 2, 1932.

During the past week, demand for the various standard grades of paper was more persistent. Inquiries for future needs are becoming numerous and should materialize into some good orders. Sales forces of the leading paper organizations are conducting a strenuous campaign. The price situation is practically unchanged.

Some improvement was noticed in the news print market. Advertising volume and circulations are slowly expanding. Production in the United States and Canada is being maintained in sufficient volume to take care of current requirements. The price situation continues unsatisfactory.

The paper board market is exhibiting a fairly strong undertone. Demand for box board is excellent and prices are well maintained. Demand for the various grades of fine paper is improving. Tissues are moving in good volume. Coarse paper is more buoyant and quotations steadier.

Mechanical Pulp

Conditions in the ground wood market are fairly satisfactory. Demand for both domestic and imported mechanical pulp is mainly along routine lines. Offerings are not excessive, however, and the industry is in a sound statistical position. Prices are generally holding to formerly quoted levels.

Chemical Pulp

Demand for the various grades of domestic and imported chemical pulp is generally improving. Shipments against contract are going forward to the paper mills in fairly heavy volume. Prices are generally holding to schedule, despite keen competition for desirable orders. The future outlook is encouraging.

Old Rope and Bagging

The old rope market continues quiet. Demand for both domestic and foreign old manila rope is restricted, at present. Small mixed rope is moving in moderate volume. Prices remain unchanged. The bagging market is fairly steady. Scrap bagging and gunny bagging are in seasonal request.

Rags

Paper mill demand for the various grades of domestic rags is somewhat irregular. Offerings of cotton cuttings are sufficient to take care of the prevailing request from the fine paper manufacturers. The roofing grades are displaying strength. Fluctuations of foreign currencies are causing some anxiety in the imported rag market.

Waste Paper

The lower grades of paper stock are in persistent request from the board mills. Quotations on the various grades are firmer. Strictly over-issue news is now quoted at from .50 to .55, strictly folded news at from .30 to .35 and No. 1 mixed paper at from .15 to .20. The better grades of waste paper continue steady.

Twine

Business in the local twine market is more active than for some time past. The demand for the various grades should continue brisk, until after the forthcoming Yuletide holidays, at least. Prices are holding to formerly quoted levels, in most instances.

DELAWARE TAPPI SECTION MEETS

(Continued from page 24)

tin, Wallace & Tiernan Company, Newark, N. J.; G. R. Heidrich, Wallace & Tiernan Company, Philadelphia, Pa.; J. J. Friel, Dill & Collins Company, Philadelphia, Pa.; J. H. Brougham, Penn Fibreboard Corporation, York, Pa.; R. H. Stagemyer, Penn Fibreboard Corporation, New York; H. P. Cannon, Container Corporation of America, Manayunk, Pa.; S. D Reynolds, Container Corporation of America; L. Justice, Container Corporation of America; W. T. Marble, Container Corporation of America; C. M. Baker, American Paper and Pulp Association, New York; J. Carl Schmidt, E. I. duPont de Nemours & Company, Philadelphia, Pa.; R. G. Macdonald, Secretary, TAPPI, New York; W. R. Maull, Dill & Collins Company, Philadelphia, Pa.; H. C. Schwalbe, Dill & Collins Company; Fred Streicher, Dill & Collins Company; W. N. Gray and Christian Siebert, Sanitary Water Board, Harrisburg, Pa.; L. M. Booth, Booth Chemical Company, Elizabeth, N. J.

New Unibase Centrifugal Pump

In offering the Unibase Centrifugal Pulp, the J. C. Stine Company, of Tyrone, Pa., believes an outstanding advance has been made in the science of design and construction. It offers great capacity per dollar for power consumed, an unusually high efficiency with extremely low price, simplicity—the keynote of all good design—compactness, portability and low cost maintenance.

THE J. C. STINE UNIBASE PUMP

The J. C. Stine Unibase Pump consists of a single suction, closed impeller, centrifugal pump, designed as an integral part of the Master motor which completes the unit. The impeller, which is mounted directly on the motor shaft, thus eliminating the usual pump shaft, bearings, and coupling, is fitted with an extended sleeve which takes all wear from the packing as well as protecting the shaft against corrosion from the liquid handled. Extreme care has been taken in the design to assure the highest possible efficiency, both hydraulically and mechanically. The unit is entirely vibrationless.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, November 2, 1932.

BLANC FIXE.—The position of the blanc fixe market is practically unchanged. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45.00 per ton, in bulk; while the powder is selling at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Most of the business transacted in the bleaching powder market during the past week was along routine lines. Prices are generally steady and unchanged. Bleaching powder is quoted at from $1.75 to $2.00 per 100 pounds, in drums, at works.

CASEIN.—The casein market is fairly active. Domestic standard ground is still quoted at 7 cents and finely ground at 8 cents per pound. Argentine standard ground is selling at 8 cents and finely ground at 8½ cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Demand for caustic soda is fairly persistent. The contract movement is well up to average. Solid caustic soda is quoted at from $2.50 to $2.55; while the flake and the ground are selling at from $2.90 to $2.95 per 100 pounds, in large drums, at works.

CHINA CLAY.—The china clay market continues steady, despite the weakness of sterling. Contract shipments are fairly heavy. Foreign china clay is quoted at from $10 to $15 per ton, ship side; while domestic paper making clay is selling at from $5 to $12 per ton, at mine.

CHLORINE.—Paper mill demand for chlorine is moderately active. The contract movement is fairly satisfactory. Prices generally remain unchanged. Chlorine is quoted at $1.55 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is fairly steady. The grades of gum rosin used in the paper mills are quoted at from $3.80 to $3.90 per 280 pounds, in barrels, at works; while wood rosin is selling at $2.80 per 280 pounds, in barrels, at southern shipping points.

SALT CAKE.—Trading in the salt cake market is seasonally active. Prices remain unchanged. Salt cake is quoted at from $15 to $16; chrome salt cake at from $12 to $13 per ton, in bulk, at works; while imported salt cake is selling at from $14 to $15 per ton, ship side.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Contract shipments are going forward in good volume. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.00; in bags, $1.25; and in barrels, $1.38.

STARCH.—Weakness developed in the starch market during the past week and quotations declined slightly. The contract movement is fair. Special paper making starch is now quoted at $2.29 per 100 pounds, in bags; and at $2.56 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Some improvement was noticed in the demand for sulphate of alumina. Prices are steady and unchanged. Commercial grades are quoted at from $1.25 to $1.40; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues firm. Sulphur is quoted at $18 per long ton, on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and near by car loads, the quotation is $21 per ton.

TALC.—Conditions in the talc market are fairly satisfactory. Prices are holding to formerly quoted levels. Domestic talc is offered at from $16 to $18 per ton, in bulk, at mine; while imported talc is selling at from $18 to $22 per ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	38.00
Bonds	4.50	@	53.25
Index	6.00	@	12.00
Writings—			
Extra Superfine	6.50	@	15.00
Superfine	6.25	@	14.75
Tub sized	4.50	@	7.00
Engine sized	4.00	@	5.00
Book, Cased—			
S. & S. C.	5.25	@	—
M. F.	3.75	@	5.00
Coated and Enamel	6.25	@	9.75
Litnograph	6.75	@	11.25
Tissues—Per Ream—			
White No. 1	.50	@	.70
Anti-Tarnish M. G. only	.65	@	.70
Colored	.70	@	.90
White No. 2	.55	@	.60
Kraft	.65	@	.70
Manila	.55	@	.60
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	3.37½	@	—
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.00	@	3.00
Card Middies	4.00	@	5.00
Glassine—			
Bleached, basis 25 lbs., No. 1	.09½	@	—
No. 2	.11¼	@	—
Bleached, basis 20 lbs.	.11¼	@	—
(Delivered New York)			
News, per ton—			
Roll, contract	45.00	@	—
Rolls, spot	45.00	@	—
Sheets	50.00	@	—
Side Runs	30.00	@	35.00
Kraft—			
No. 1 Domestic	4.75	@	6.00
No. 2 Domestic	2.75	@	3.00
Southern	2.62½	@	2.75
Imported	2.75	@	3.50
Boards—per ton—			
News	30.00	@	—
Straw	32.00	@	—
Chip	27.50	@	—
Binders' Boards	62.00	@	70.00
Kraft Liner	37.50	@	—
Standard 85 Test Liner	26.50	@	—
Sgl. Mla. Lt. Chip	37.50	@	—
(F. o. b. Mill)			
Wood Pulp Boards	70.00	@	80.00

Mechanical Pulp

(On Dock)

No. 1 Imported—			
Moist	17.00	@	20.00
Dry	17.00	@	20.00
(F. o. b. Mill)			
No. 1 Domestic	16.00	@	24.00

Chemical Pulp

(On Dock, Atlantic Ports)

Sulphite (Imported)—			
Bleached	1.90	@	2.25
Easy Bleaching	1.60	@	1.75
No. 1 strong unbleached	1.40	@	1.60
Mitscherlich unbleached	1.55	@	1.75
No. 2 strong unbleached	1.25	@	1.35
No. 1 Kraft	1.40	@	1.65
No. 2 Kraft	1.30	@	1.40
Sulphate—			
Bleached	1.85	@	2.15
(F. o. b. Pulp Mill)			
Sulphite (Domestic and Canadian)—			
Bleached	1.75	@	3.75
Easy Bleaching	1.75	@	1.90
News	1.50	@	1.65
Mitscherlich unbleached	2.25	@	2.55
Kraft (Domestic)	1.50	@	2.75
(Delivered Paper Mills)			
Soda Bleached	2.25	@	—

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	4.00	@	4.25
New White, No. 2	3.00	@	3.25
Silesias No. 1	3.75	@	4.00
New Unbleached	5.50	@	6.00
New Soft Blacks	2.75	@	3.00
Blue Overall	3.00	@	3.50
Fancy	1.50	@	1.75
Washables	1.15	@	1.40
Mixed Khaki Cuttings	2.50	@	3.00
Pink Corset Cuttings	2.75	@	3.25
O. D. Khaki Cuttings	3.00	@	3.25
Men's Corduroy	1.00	@	1.25
New Mixed Blacks	2.25	@	2.50

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White, No. 2—			
Repacked	1.75	@	2.00
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.00	@	1.25
Black Stockings	2.00	@	2.25
Roofing Rags—			
No. 1	.53	@	.58
No. 2	.48	@	.53
No. 3	.43	@	.48
No. 4	.38	@	.43
No. 5A	.33	@	.38

Foreign Rags

New Rags

New Dark Cuttings	1.40	@	1.50
New Mixed Cuttings	1.60	@	1.75
New Light Silesias	3.00	@	3.25
Light Flannelettes	2.50	@	2.75
Unbleached Cuttings	4.75	@	5.25
New White Cuttings	4.00	@	4.25
New Light Oxfords	3.00	@	3.25
New Light Prints	1.85	@	2.25

Old Rags

No. 1 White Linens	5.25	@	5.50
No. 2 White Linens	4.50	@	4.75
No. 3 White Linens	3.25	@	3.75
No. 4 White Linens	1.75	@	2.25
No. 1 White Cotton	3.50	@	3.75
No. 2 White Cotton	2.75	@	3.25
No. 3 White Cotton	2.25	@	2.50
No. 4 White Cotton	1.40	@	1.50
Extra Light Prints	1.80	@	2.00
Ord. Light Prints	1.60	@	1.75
Med. Light Prints	1.40	@	1.55
Dutch Blue Cottons	1.35	@	1.40
French Blue Linens	1.80	@	1.90
German Blue Linens	1.70	@	1.80
German Blue Cottons	1.20	@	1.25
Checks and Blues	1.25	@	1.30
Lindsay Garments	.75	@	.80
Dark Cottons	.70	@	.75
Old Shopperies	.55	@	.60
New Shopperies	.60	@	.65
French Blues	1.25	@	1.30

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.00	@	1.10
Domestic	1.15	@	1.25
Wool Tares, light	.80	@	.85
Wool Tares, heavy	.80	@	.85
Bright Bagging	.75	@	.80
Small Mixed Rope	.80	@	.90
Manila Rope—			
Foreign	1.45	@	1.50
Domestic	1.50	@	1.75
New Burlap Cut	1.65	@	1.75
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	1.60	@	1.70
Ordinary Hard White No. 1	1.50	@	1.60
Hard White No. 2	1.30	@	1.40
Soft White No. 1	1.40	@	1.50
Flat Stock—			
Stitchless	.55	@	.65
Overissue Mag	.55	@	.65
Solid Flat Book	.50	@	.55
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.75
Ledger Stock	.45	@	.55
New B. B. Chips	.20	@	.25
Manilas—			
New Env. Cut	1.25	@	1.35
New Cuttings	1.00	@	1.05
Extra No. 1 old	.80	@	.90
Print	.35	@	.40
Bogus Wrapper	.30	@	.35
Container	.25	@	.30
Old Kraft Machine—			
Compressed bales	.75	@	.85
News—			
No. 1 White News	1.05	@	1.15
Strictly Overissue	.50	@	.55
Strictly Folded	.40	@	.45
No. 1 Mixed Paper	.15	@	.20

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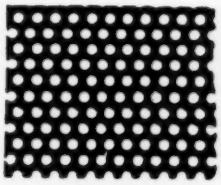

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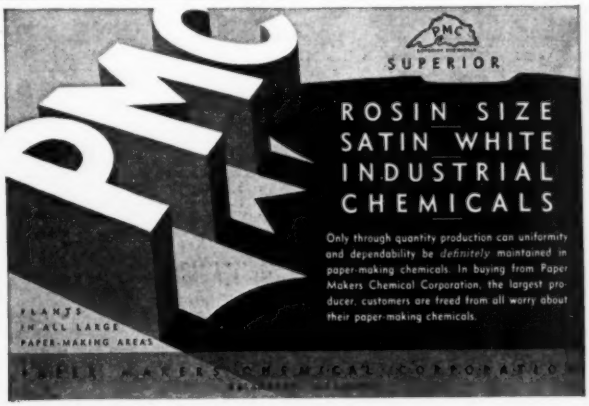
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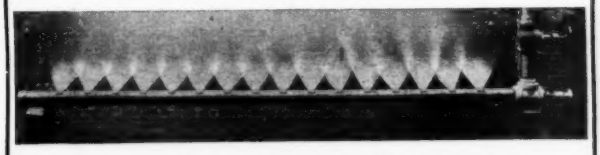

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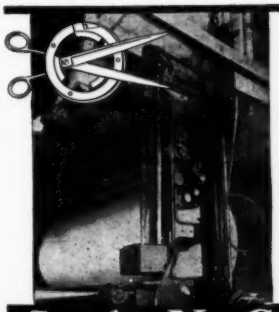

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Twines
(F. o. b. Mill)

Cotton—			
B. C., 18 basis	.30	@	.32
No. 1	.20	@	.22
No. 2	.19	@	.20
No. 3	.17	@	.18
A. Italian, 18 basis	.36	@	.37
Finished Jute—			
Dark, 18 basis	.18	@	.20
Light, 18 basis	.20	@	.22
Jute Wrapping, 3-6 Ply—			
No. 1	.15½	@	.16½
No. 2	.11¼	@	.12¾
Tube Rope—			
4-ply and larger	.10¼	@	.10¾
Fine Tube Rope—			
4-ply	.12½	@	.12¾
3-ply	.13¼	@	.13¾
2-ply	.14½	@	.14¾
Paper Makers Twine			
Balls	.09¼	@	.11¼
Box Twine, 2-3 ply	.11¼	@	.12¾
Jute Rope	.0[illegible]	@	.11
White Hemp	.12¼	@	.12¾
Java Sisal—			
No. 1 Basis	.10	@	—
No. 2 Basis	.09	@	—
New Zealand Sisal	.10	@	—
Sisal Lath Yarn—			
No. 1	.12	@	.14
No. 2	.10	@	.12
Manila Twine	.23	@	.28

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.30	@	.53¼
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.04	@	.11
Superfine Writing	.18	@	.24
No. 1 Fine Writing	.14	@	.18
No. 2 Fine Writing	.12	@	.14
No. 3 Fine Writing	.07	@	.18
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¾	@	.05¾
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	3.50	@	4.50
Southern Kraft	2.62½	@	—
No. 2 Kraft	2.62½	@	—
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¾
Manila Tissue	.07	@	.07¾
White Tissue	.07¼	@	.07½
(Delivered Central Territory)			
News, per ton—			
Rolls, contract	45.00	@	—
Sheets	50.00	@	—
Boards, per ton—			
Plain Chip	27.50	@	—
Solid News	30.00	@	—
Manila Lined Chip	37.50	@	—
Patent coated	47.50	@	—
Container Lined—			
85 Test	50.00	@	55.00
100 Test	55.00	@	60.00

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.50	@	1.55
No. 1 Hard White	1.40	@	1.45
No. 1 Soft White	1.00	@	1.10
Ledger & Writings	.45	@	.55
Solid Books	.25	@	.30
Blanks	1.00	@	1.05
Krafts	.70	@	.80
New Kraft Cuts	1.15	@	1.25
Manila Env. Cuts	1.25	@	1.30
Ex. No 1 Manila	.90	@	1.00
Print Manila	.30	@	.35
Overissue News	.30	@	.35
Old Newspapers—			
No. 1	.25	@	.30
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(F. o. b. Mill)

Bonds	.04	@	.40
Ledgers	.06	@	.40
Writings—			
Superfine	.10	@	.18
Extra Fine	.15	@	.26
Fine	.15	@	.26
Fine, No. 2	.10	@	.25
Fine No. 3	.05½	@	.18
Book, M. F.	.04¾	@	.07
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06	@	.16
Coated Lithograph	.06	@	.11
Label	.07	@	.11
No. 1 Jute Manila	.06	@	.09
Manila Sul., No. 1	.03	@	.05
Manila No. 2	.03	@	.04
No. 1 Kraft	.05¼	@	.06
No. 2 Kraft	.03¾	@	.04¼
Southern Kraft No. 1	—	@	.03¾
Southern Kraft No. 2	—	@	.02¾
Common Bogus	.03	@	.04
(Delivered Philadelphia)			
News Print Rolls	46.00	@	—
Straw Board	32.00	@	—
News Board	30.00	@	—
Chip Board	30.00	@	—
Wood Pulp Board	70.00	@	80.00
Binder Boards—			
No. 1, per ton	73.00	@	75.00
No. 2, per ton	62.00	@	65.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.60
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.03½	@	.04
New White, No. 2	.02½	@	.04
Light Silesias	.02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	.02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01	@	.01½
Blue Overall	.03	@	.03½
Cottons—According to grades—			
Washable No. 2	.01	@	.02
New Blue	.01	@	.02
Fancy	.01½	@	—
New Black Soft	.02	@	.03
New Light Seconds	.01	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.03½
No. 2 Mixed	.02½	@	.03
Corduroy	.02	@	.02½
New Canvas	.03½	@	.04
New Black Mixed	.02½	@	.03

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.00
Miscellaneous	1.75	@	2.00
M. G.	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	1.00	@	1.25
Repacked	1.50	@	1.75
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.80

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	—
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	1.60	@	1.70
No. 2 Hard White	1.50	@	1.60
No. 1 Soft White	1.25	@	1.30
No. 2 Soft White	1.10	@	1.15
No. 1 Mixed	.50	@	.60
No. 2 Mixed	.40	@	.50
Solid Ledger Stock	1.00	@	1.10
Writing Paper	.75	@	.80
No. 1 Books, heavy	.55	@	—
No. 2 Books, light	.40	@	—
No. 1 New Manila	1.10	@	1.15
No. 1 Old Manila	.75	@	.80
Print Manila	.45	@	.50
Container Manila	.40	@	.45
Old Kraft	.85	@	.90
Common Paper	.20	@	.25
No. 1 Mixed Paper	.25	@	.30
Straw Board, Chip	.25	@	.30
Binders Board, Chip	.25	@	.30
Corrugated Board	.35	@	.45
Overissue News	.45	@	.55
Old Newspaper	.40	@	.50

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.06	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.05½	@	.11½
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul No. 2	.03¾	@	.04½
No. 1 Kraft	—	@	.04¾
No. 2 Kraft	—	@	.02¾
(F. o. b. Boston)			
Southern Kraft	—	@	.02½
(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)			
Common Bogus	.02	@	.02¾
(Delivered New England points)			
News Print, rolls	44.50	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—	@	40.00
Filled News Board	—	@	30.00
Chip Board	27.50	@	—
Chip Board (Creasing)	27.50	@	30.00
Single Manila Lined Chip	—	@	37.50
Single White, Patent Coated News Board—Bender	45.00	@	55.00
Wood Pulp Board	70.00	@	75.00
Binder Boards	62.00	@	75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Soft White	1.50	@	1.60
No. 1 Old Manila	.50	@	.60
No. 2 Mixed	.50	@	.55
No. 1 Mixed	.75	@	.85
Solid Ledger Books	1.20	@	1.40
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.60	@	.70
No. 1 Books, heavy	.55	@	.65
No. 1 Books, light	—	@	.30
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.55	@	.65
White Blank News	.95	@	1.00
Kraft No. 1	.90	@	1.00
Manila	.80	@	.90
No. 1 Mixed Papers	.15	@	.20
Print Manila	.30	@	.40
Overissue News	.35	@	.45
Old Newspapers	.32½	@	.35
Box Board, Chip	.17½	@	.20
Corrugated Boxes	.20	@	.25
Screening Wrappers	.25	@	.32½

Bagging
(F. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.00
Domestic	.80	@	.85
Manila Rope—			
Foreign	1.40	@	1.50
Domestic	—	@	1.60
Transmission Rope	1.00	@	—
Mixing String	—	@	.30
Jute Rope	—	@	.75
Jute Carpet Threads	.45	@	.50
Bleachery Burlap	1.75	@	2.00
Scrap Burlap	.60	@	1.00
No. 1 Scrap Burlap	.80	@	.90
Scrap Sisal	.75	@	.85
Scrap Sisal for shredding	.90	@	1.00
Wool Tares, heavy	.65	@	.75
New Burlap Cutting	.75	@	.90
Australian Wool Pouches	—	@	1.50
Heavy Baling Bagging	.90	@	1.10
Paper Mill Bagging	.50	@	.60
Bagging No. 2	.20	@	.25
No. 1 Burlap	1.80	@	2.00

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	—	@	.01½
New White No. 1	.03¾	@	.04
New White No. 2	.02¾	@	.03¼
Silesias No. 1	—	@	.03
New Black Silesias	.02½	@	.02¾
New Unbleached	.05	@	.05¼
Fancy	—	@	.02½
Washable	—	@	.01¾
Cottons—According to grades—			
Blue Overalls	—	@	.03¼
New Black, soft	.04	@	.04½
Khaki Cuttings	.03	@	.03½
O. D. Khaki	.03½	@	.03¾
Corduroy	.02¾	@	.03
New Canvas	—	@	.05
B.V.D. Cuttings	.04	@	.04¼

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.00	@	2.25
White No. 2—			
Repacked	.02¼	@	.02½
Miscellaneous	.02	@	.02¼
Twos and Blues	.90	@	1.00
Thirds and Blues—			
Repacked	.75	@	.85
Miscellaneous	.70	@	.75
Black Stockings	2.00	@	2.25
Roofing Stock—			
No. 1	.35	@	.40
No. 2	.30	@	.35
No. 3	.25	@	.30

Foreign Rags
(F. o. b. Boston)

Dark Cottons	.50	@	.60
New No. 1 White Shirt Cuttings	3.75	@	4.00
Dutch Blues	1.25	@	1.50
New Checks & Blues	2.25	@	2.50
Old Fustians	—	@	.75
Old Linsey Garments	.55	@	.65

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¼	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	
No. 2 Colored	.09	@	.10½
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.65	@	—
No. 3 M. F. (Carloads)	6.20	@	—
No. 4 M. F. (carloads)	5.25	@	—
No. 1 S. C. (carloads)	7.15	@	—
No. 3 S. C. (carloads)	6.65	@	—
No. 4 S. C. (carloads)	5.70	@	—
No. 1 Coated and Litho	12.50	@	—
No. 2 Coated and Litho	11.50	@	—
No. 3 Coated and Litho	10.00	@	11.50
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.40	@	—
White Wrap	2.00	@	—
"B" Manila	4.90	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.75	@	—
Kraft No. 2	5.40	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	45.50	@	—
Sheets	50.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	48.00	@	58.00
Sulphate	50.00	@	—

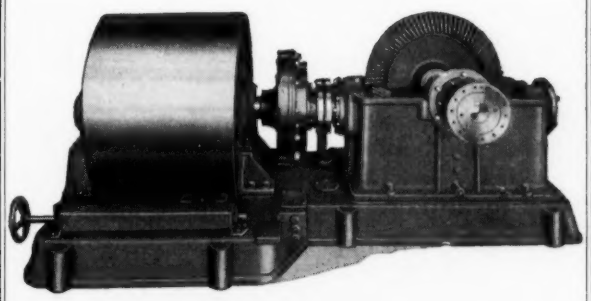
Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	1.80	@	—
Soft White	1.40	@	—
White Blk. News	1.25	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	—
Light and Crumpled Book Stock	.80	@	—
Ledgers and Writings	1.00	@	—
Manilas—			
New Manila Cut	1.25	@	—
Printed Manilas	.55	@	—
Kraft	1.75	@	—
News and Scrap—			
Strictly Overissue	.50	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.09½	@	.10
Fancy Shirt Cuttings	.06	@	.06¼

HYPOID GEAR DRIVE STANDS



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